JAN 2 5 1995

CDM FEDERAL PROGRAMS CORPORATION

a subsidiary of Camp Dresser & McKee Inc.

January 23, 1995

Mr. Chuck Schwer
Sites Management Section
Hazardous Materials Management Division
Department of Environmental Conservation
Agency of Natural Resources
103 South Main Street
West Building
Waterbury, VT 05671-0404

SUBJECT: EPA Contract No.: 68-W9-0045
Work Assignment No.: 23-1JZZ
Final Site Inspection Prioritization Report
Rutland City Landfill
Rutland, Vermont
TDD No.: 9305-24-ACX
CERCLIS No.: VTD980914881

DOCUMENT NO.: 7710-023-ST-BNKW

Dear Mr. Schwer:

One copy of the Final Site Inspection Prioritization Report for the Rutland City Landfill located in Rutland, Vermont is enclosed. If you have any comments or questions regarding this submittal, please contact me at (617) 742-2659.

Very truly yours,

CDM FEDERAL PROGRAMS CORPORATION

Tara Abbott Taft
ARCS I Work Assignment Manager

Approved:

Myron S. Rosenberg, Ph.D., P.E.
ARCS I Program Manager

TAT/cat

Attachment

cc: Sharon Hayes, EPA Work Assignment Manager (letter only)
Don Smith, EPA Vermont Site Assessment Manager (letter only)
Julia Nault, CDM ARCS I Deputy Program Manager (letter only)
Cord Thomas, CDM Site Manager (letter only)
Document Control File (letter only)

160 North Washington Street, Suite 400 Boston, MA 02114 617 742-2659 Facsimile 617 227-3851

ARCS I

Final Site Inspection Prioritization Report

Rutland City Landfill

Rutland, Vermont

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY, Region I
Waste Management Division
Boston, MA

Work Assignment No.:	23-1JZZ
EPA Region:	I
CERCLIS No.:	VTD980914881
TDD No.:	9305-24-ACX
Contract No.:	68-W9-0045
Document No.:	7710-023-FR-BNKT
Prepared By:	CDM Federal Programs Corporation
CDM Work Assignment Manager:	Tara Abbott Taft
Telephone No.:	(617) 742-2659
EPA Work Assignment Manager:	Sharon Hayes
Telephone No.:	(617) 573-5709
Date Prepared:	January 23, 1995

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF TABLES (continued)

Final Site Inspection Prioritization Report
Rutland City Landfill
Rutland, Vermont

CERCLIS No. VTD980914881
TDD No. 9305-24-ACX
Work Assignment No. 23-1JZZ
Document No. 7710-023-FR-BNKT

INTRODUCTION

The CDM Federal Programs Corporation (CDM) Alternative Remedial Contracting Strategy (ARCS) team was requested by the U.S. Environmental Protection Agency (EPA) Region I Waste Management Division to perform a Site Inspection Prioritization (SIP) of the Rutland City Landfill property in Rutland, Vermont. Tasks were conducted in accordance with the ARCS Contract No. 68-W9-0045, the SIP scope of work dated September 3, 1992, and technical specifications provided by EPA under Work Assignment No. 23-1JZZ, which was issued to CDM on September 22, 1992. A Preliminary Assessment (PA) was completed by the Vermont Agency of Natural Resources, Department of Environmental Conservation (VTDEC) in May 1986. On the basis of the information provided in the PA report, the Rutland City Landfill Site Inspection was initiated. A Site Inspection (SI) report was completed by VTDEC on December 30, 1989. Updated information encountered during the SIP process is included in this report. Relevant text from the SI report is also included, indented and in a smaller font.

Background information used in the generation of this report was obtained through file searches conducted at VTDEC, telephone interviews with town officials, conversations with persons knowledgeable of the Rutland City Landfill property and conversations with other federal, state, and local agencies. Additional information was collected during the CDM onsite reconnaissance on October 6, 1994.

This package follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other federal, state, or local regulations. SIPs are intended to provide a preliminary screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

SITE DESCRIPTION

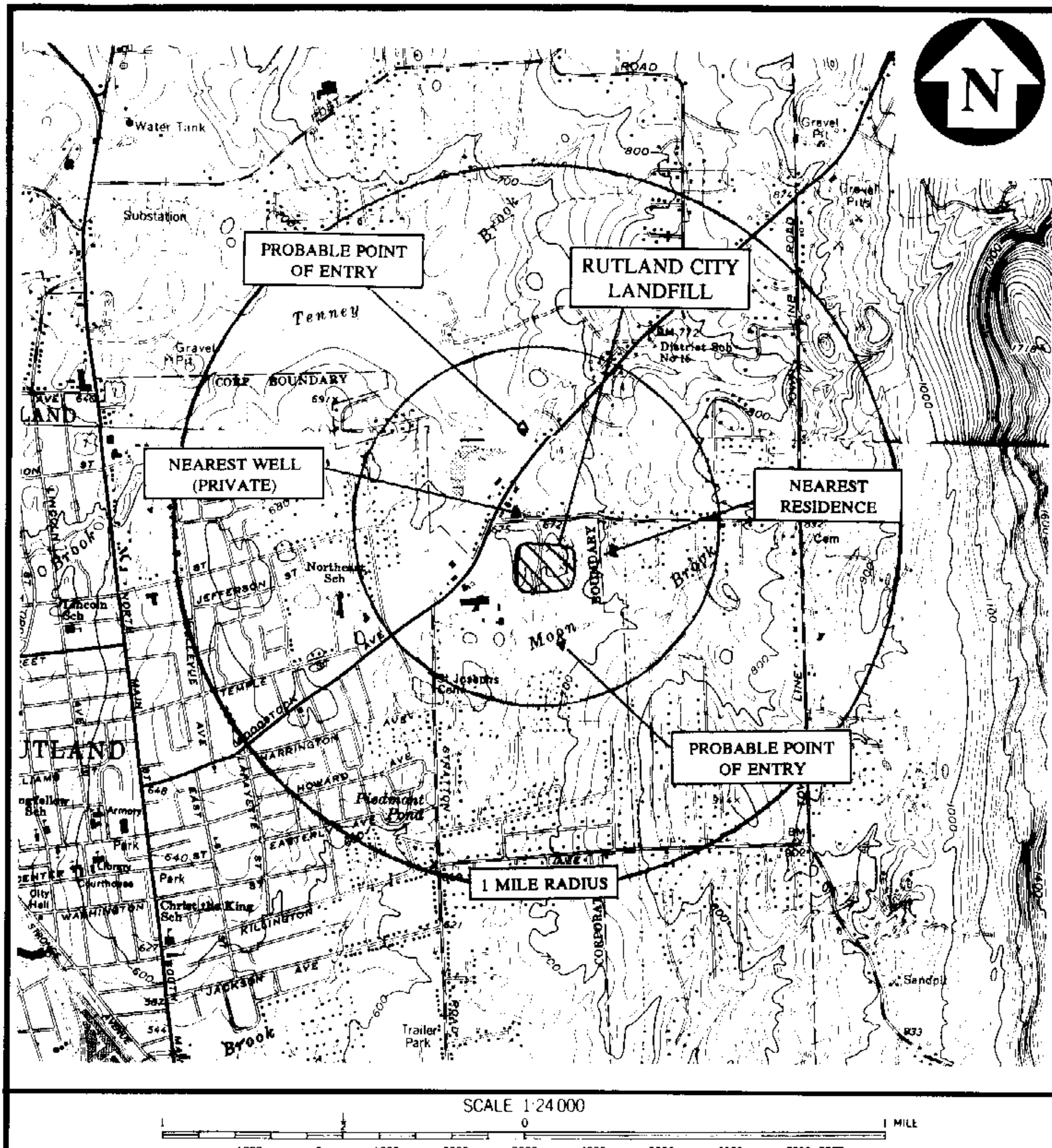
The Rutland City Landfill (landfill) is located on Gleason Road in Rutland, Rutland County, Vermont (see Figure 1: Location Map) [35,37,43]. The geographic coordinates of the north end of the landfill access road are Latitude: 43° 37′ 17.6″ North and Longitude 72° 57′ 6.1″ West [37]. The landfill occupies the northern 25 acres of a 40-acre parcel of land owned by the City of Rutland (see Figure 2: Site Sketch) [6,43,46,48].

Between the 1930s and 1988, approximately 300,000 tons of solid waste were deposited at the landfill [48]. The landfill was capped in 1990 and is no longer active [3,22]. The landfilling activities and subsequent capping have created an artificial topographic high in the region. The natural elevation of the property ranged from 690 to 695 feet above mean sea level (MSL). The landfilled material extends slightly above 730 feet MSL. The landfill cap consists of 2 feet of clay material spread over 1 foot of regular cover. A 6-inch topsoil layer was added to the clay cover and seeded [3,22,23].

The Rutland County Solid Waste District (SWD) operates several recycling and transfer station programs at the landfill, primarily in the northwest corner of the property [1]. A large compactor, located to the east of the access road, is used to compact waste collected by private waste haulers. A small fenced area is operated to the west of the access road by a single SWD employee, as a hazardous waste receiving area. Wastes are segregated and stored in various containers that are removed by a licensed hauler. Refrigerators are stored to the south of the hazardous waste receiving area. Freon is removed by a licensed freon remover, and then the refrigerators are hauled from the landfill [1].

Much of the perimeter of the landfill property is wooded; portions of the eastern and southern side are in low-lying wetland areas [1,37,43]. The wetland species *Phragmites* has grown aggressively in these areas since the landfill was closed. An unnamed stream drains the wetland area in the northwest. This stream flows west-northwest along the northern edge of the landfill, eventually flowing under Gleason Road near the access road. The wetlands to the south of the landfill are similarly drained by small tributaries. These tributaries flow southwest into Moon Brook, approximately 500 feet south of the wetland vegetation. Ten overburden monitoring wells have been installed around the perimeter of the landfill. These wells have been overgrown by the wetland vegetation [1,6,37,43].

> Land use in the area of the landfill is residential and commercial or light industry. The area to the north of the landfill (north of Gleason Road) is occupied by some small businesses and private homes. The eastern boundary of the landfill coincides with the corporate boundary between Rutland City and Rutland Town, beyond which lies a residential area. To the south is an undeveloped, forested tract of privately-owned land which separates the landfill from another residential area further to the south. West of the landfill, in a topographically low, open area, is the Rutland Vocational-Technical School and athletic field. Most of the area immediately surrounding the landfill is poorly drained marsh, with the exception of the western region [43].

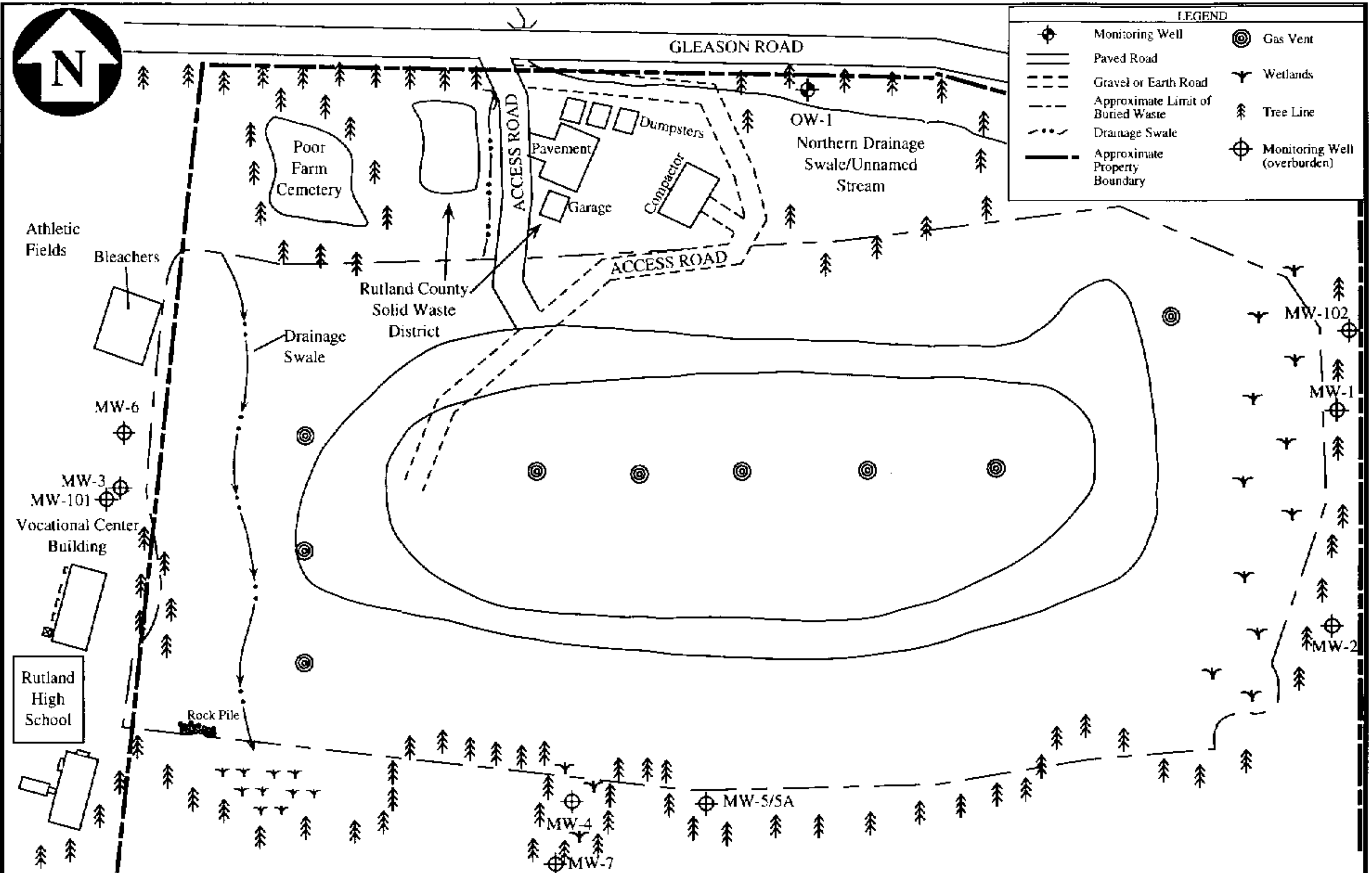


Source: Base map consists of a portion of the U.S. Geological Survey, Rutland, VT (1961) and Chittenden, VT (1961) Quadrangles, 7.5' minute series (topographic).

LOCATION MAP
RUTLAND CITY LANDFILL
RUTLAND, VERMONT

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

Figure 1



SOURCE: ADAPTED FROM DUBOIS & KING. 1989. SITE PLAN. DRAWING 7069.

NOT TO SCALE

SITE SKETCH
RUTLAND CITY LANDFILL
RUTLAND, VERMONT

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

Figure 2

OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

> The Rutland Landfill began operations in the 1930s and operated as a burning dump until 1971 when it was converted to a landfill operation. Trash was originally burned in a cement pit up until 1966 when a metal teepee burner was installed. The teepee burner was used until 1971 when conversion was made to landfilling. The towns serviced by the Rutland Landfill at one time included at least Rutland City, Rutland Town and Mendon. Rutland City and Mendon were serviced up until the initial cessation of landfilling activities in March of 1988. The history of this facility has included instances of illegal disposal of trash from towns not under contract to be serviced by the Rutland Landfill. The Rutland Landfill was reopened in August of 1988 in response to the closure of the Vicon trash incineration plant [43].

In 1975, under contract to the City of Rutland, Whitman & Howard, Inc., prepared an *Operational Report with Plans for the Rutland Solid Waste Disposal Site*. The report was a summary of a study conducted by Whitman & Howard to determine if the Rutland "dump" was a suitable location from which to operate a sanitary landfill. The report indicated that the area was adequate for the siting of a sanitary landfill. The report noted that there were several leachate outbreaks with potent odors along the toe of the landfill [49].

In April 1986, Wagner and Associates, Inc., completed the *Revised Report of the Rutland Sanitary Landfill, Hydrogeologic Study*. This study included the installation of six groundwater monitoring wells and collection of samples from the monitoring wells and four surface water locations [47]. See the Groundwater Pathway and Surface Water Pathway sections for discussions of these activities. Until 1988, Wagner and Associates (by 1988, Wehran Engineering) continued to study the landfill [48].

In January 1988, Wehran Engineering (Wehran) submitted a draft copy of the *Final Report on the Rutland City Landfill, Hydrogeologic Study*. This report summarized the surficial and bedrock mapping completed by Wehran, the installation of an additional groundwater monitoring well, and the analytical results of the groundwater and surface water samples collected between 1985 and 1988 [48]. See the Groundwater Pathway and Surface Water Pathway sections for discussions of these activities.

In August 1989, VTDEC granted the Rutland Department of Public Works (DPW) permission to deposit 30 cubic yards of petroleum-contaminated soil at the landfill. This soil contained total petroleum concentrations of less than 100 parts per million (ppm), and therefore met disposal criteria [13].

In February 1990, VTDEC granted the Rutland DPW permission to deposit 10 yards of friable asbestos aircell insulation and a quantity of transite board and floor tile at the landfill. Disposal requirements included burying the asbestos beneath at least 2 feet of cover material within the approved limits of the landfill [14].

The City of Rutland received an Assurance of Discontinuance date stipulating cessation of landfilling by March 1, 1990. The city requested an extension for operation until July 1, 1990, in order to achieve the final closure grade [3].

In June 1990, VTDEC granted the Rutland DPW permission to deposit additional quantities of asbestos-containing siding shingles in the landfill. The exact volume of waste was not documented [15].

The landfill closure plan stipulated a minimum 5 percent grade over the entire landfill to ensure surface water runoff. Filling activities, starting in 1985, at an average rate of 50 tons per day, were oriented towards reaching the final grade goal. By May 1990, only 3 acres of the 24-acre landfill remained in need of final cover placement, and 7 acres were in need of seeding. The final cover was completed in 1990. The Revised Landfill Closure Plan, dated May 1990, was approved in August 1990 [3].

Gas collection and venting pipes were also installed in the landfill. These are 4-inch polyvinyl chloride (PVC) pipes bedded in washed crushed stone. The collection trench extends 6 feet into the refuse or to natural ground surface. The vents are located at intervals of 100 feet on center for the central system and at 200 feet on center for the western border system. Since their installation, several of the gas vents have been vandalized. The DPW replaces the aboveground portions of the vents when this occurs. A runoff control system was engineered along the west side of the landfill to control erosion and runoff [1,3,22].

In August 1990, the VTDEC Solid Waste Management Division approved the landfill closure plan. As part of the closure plan, the city is required to monitor the groundwater in neighboring private wells, onsite monitoring wells, and two seepage locations on a semiannual schedule for 20 years. These requirements are a continuation of monitoring that began in 1985 [3].

In December 1990, GEI Consultants, Inc., (GEI) submitted a *Final Data Summary Report, Rutland City Landfill* to VTDEC. This report was completed under the ANR Vermont Landfills Assessment Program. GEI visited the landfill on several occasions to document the conditions of the landfill, the quality of the groundwater, and the local geology. GEI noted several leachate plumes on the landfill, particularly near monitoring wells MW-4 and MW-5A. GEI also noted a large number of tires and some erosion of cover material resulting in exposed landfill materials. GEI installed two groundwater monitoring wells (see the Groundwater Pathway section for a discussion) and recommended further groundwater sampling and installation of additional monitoring wells; however, budget constraints limited these efforts [6].

Sometime in 1991, the City of Rutland retained Dufresne-Henry to conduct the sampling as required by the Revised Landfill Closure Plan. In 1991, VTDEC sent letters to several of the businesses located to the west of the landfill, indicating that the concentrations of several contaminants detected in their wells exceeded Vermont Department of Health Advisory limits [16,17,18,19,20].

In 1994, VTDEC received the analytical results generated for sampling conducted in 1992, 1993, and 1994. Analytical summary tables presented to VTDEC indicated continued elevated concentrations in the onsite monitoring wells of several inorganics as well as some volatile organics [2]. The analytical results generated for 1992, 1993, and 1994 also indicated that the water supply for several of the businesses located to the west and northwest of the landfill contained contaminants at concentrations exceeding Health Advisory levels established by the Vermont Department of Health and drinking water standards (Maximum Contaminant Levels

[MCLs]) established by EPA [34]. See the Groundwater Pathway section for a discussion of the sampling events and summary of the analytical results.

EPA entered the Rutland City Landfill into the CERCLA Information System (CERCLIS), an EPA data base of facilities known to have or suspected of having disposed of hazardous substances, on March 14, 1986 [35]. In May 1986, the Department of Water Resources, the VTDEC Waste Management Division, completed the PA of the Rutland City Landfill [43].

On November 4, 1987, VTDEC conducted field sampling for the Rutland City SI. VTDEC collected leachate samples from leachate seeps, groundwater samples from monitoring wells and private residences, and sediment and surface water samples from two areas near the landfill [43]. See the Waste/Source Sampling, Groundwater Pathway, and Surface Water Pathway sections for sampling activity descriptions and a summary of the analytical results.

On October 6, 1994, CDM visited the landfill to meet with appropriate personnel and document the current conditions of the landfill. While examining the perimeter of the landfill with the project manager from Dufresne-Henry and the city engineer, CDM noted, with concurrence from the Dufresne-Henry project manager, that the wetlands on the eastern boundary and southwestern corner have increased in size. CDM was therefore unable to locate the monitoring wells installed in these areas. CDM did not observe any leachate at the landfill, possibly because of the dense grass covering nearly the entire landfill [1].

Table 1 presents identified structures or areas on the Rutland City Landfill property that are potential sources of contamination, the containment factors associated with each source, and the relative location of each source.

TABLE 1

Source Evaluation for Rutland City Landfill

Potential Source Area	Containment Factors	Spatial Location
Landfill	Capped with 2 feet of clay and 6 inches of top soil. No containment for groundwater migration.	25 acres in the center of a 40-acre property

[1,3,6,35,43,47,48,49]

A large number of industries, currently and formerly active in the Rutland area, may have disposed of hazardous wastes at the Rutland City Landfill. The following industries are known to have disposed of some or all of their waste at the landfill: Howe Richardson Scale Company, Moore Business Forms, Rutland Plywood, General Electric, Patch Wagner Foundry, and Foley Services [43].

According to the SI, the Howe Richardson Scale Company began operating in the late 1800s, closing in 1982. Plating wastes, solvents, coolants, and paint wastes were possibly brought to the landfill between the 1930s, when the landfill began operating, and 1978, when VTDEC (this agency has also gone by other names) questioned the landfilling practices. Disposal of coolant, coolant sludge, and paint filters continued past 1978, possibly until 1982 (reported closing of the plant) [43].

Moore Business Forms (MBF) landfilled sponges saturated with lubricating oil. Approximately three 20-gallon bags of waste sponges were generated every month and presumably sent to the landfill. MBF also generates waste ink and waste halogenated solvents. The disposal point of these waste liquids prior to 1980 is not documented. In 1982, a number of drums of liquid waste were discovered at the landfill, at least four of which originated from MBF. Two of the drums contained waste oil and two contained waste ink. The remaining drums, numbering from 8 to 10 drums, were crushed by the landfill operator before he realized they were full of liquid and the contents seeped into the ground [43].

Rutland Plywood has operated in Rutland since 1957, manufacturing plywood with a urea formaldehyde glue. Waste glue was disposed of in the landfill until 1978. In 1985, Rutland Plywood generated approximately 1,500 gallons of a waste glue/water mixture per month, a reduction in volume since 1978 [43].

General Electric operates three plants in Rutland. The plants generate waste oil, waste solvents, grinding sludge, acids, and glass beads from a peening operation. Only the glass beads are known to have been taken to the landfill [43].

According to communication with a former Patch Wagner Foundry employee, the company possibly dumped cutting oil at the landfill. Foley Services, a dry cleaning business, sent waste solvent sludge to the landfill for a period of at least 5 years and possibly as long as 16 years [43].

Three facilities in Rutland are listed in CERCLIS: Foto Hut Property (EPA ID No. VTD988368536), Howe Richardson Scale Company (EPA ID No. VTD002078509), and the Rutland City Gas Works (EPA ID No. VT0000448902). The Foto Hut Property received a no further action decision by EPA in 1993 [35]. Nine facilities have notified as RCRA large quantity generators, including the Howe Richardson Scale Company and the three General Electric Plants. Additionally, General Electric has notified as a hazardous waste treatment facility [33]. The listing of the Howe Richardson Scale Company is not in agreement with the SI report that states that it ceased operations in 1982 [33,43].

Table 2 summarizes the types of potentially hazardous substances that have been disposed of, used, or stored on the property. These substances were generated by one or more of the above-listed facilities [43]. Other waste generators have possibly disposed of waste materials at the landfill.

TABLE 2

Hazardous Waste Quantity for Rutland City Landfill

Substance	Quantity or Volume/Area	Years of Use/Storage	Years of Disposal	Source Area
Solid waste	300,000 tons	N/A	1930s to 1988	Landfill
Nickel plating sludge	four 55-gallon drums/year	N/A	unknown to 1978	Landfill
Copper plating waste	three 55-gallon drums/year	N/A	unknown to 1978	Landfill
Sulfuric acid waste	four 55-gallon drums/year	N/A	unknown to 1978	Landfill
Trichloroethene	One 55-gallon drum/year	N/A	unknown to 1978	Landfill
Hydrochloric acid	Six 55-gallon drums/year	N/A	unknown to 1978	Landfill
Zinc plating waste	Thirteen 55-gallon drums/year	N/A	unknown to 1978	Landfill
Chromic and nitric acid	Four 55-gallon drums/year	N/A	unknown to 1978	Landfill
MacDermite Macroleach 1	One 55-gallon drum/year	N/A	unknown to 1978	Landfill
Oakite Clear Guard	Two 55-gallon drums/year	N/A	unknown to 1978	Landfill
Trim Sol synthetic coolant	2,860 gallons per year	N/A	unknown to 1978	Landfill
Coolant sludge	2,860 gallons per year	N/A	unknown to 1978	Landfill
Methylene chloride/formic acid paint stripper	110 gallons per year	N/A	unknown to 1978	Landfill
Paint thinners	660 gallons per year	N/A	unknown to 1978	Landfill
Paint filters and paint residue	600 pounds per year	N/A	unknown to 1978	Landfill
Waste ink and oil	12 to 14 drums	N/A	1982	Landfill
Glue waste (formaldehyde)	18,000 gallons per year	N/A	1957 to 1978	Landfill
Cutting oil (unknown constituents)	unknown	N/A	unknown	Landfill
Dry cleaning sludge	360 gallons per year	N/A	5 to 16 years	Landfill

N/A = Not applicable

[43]

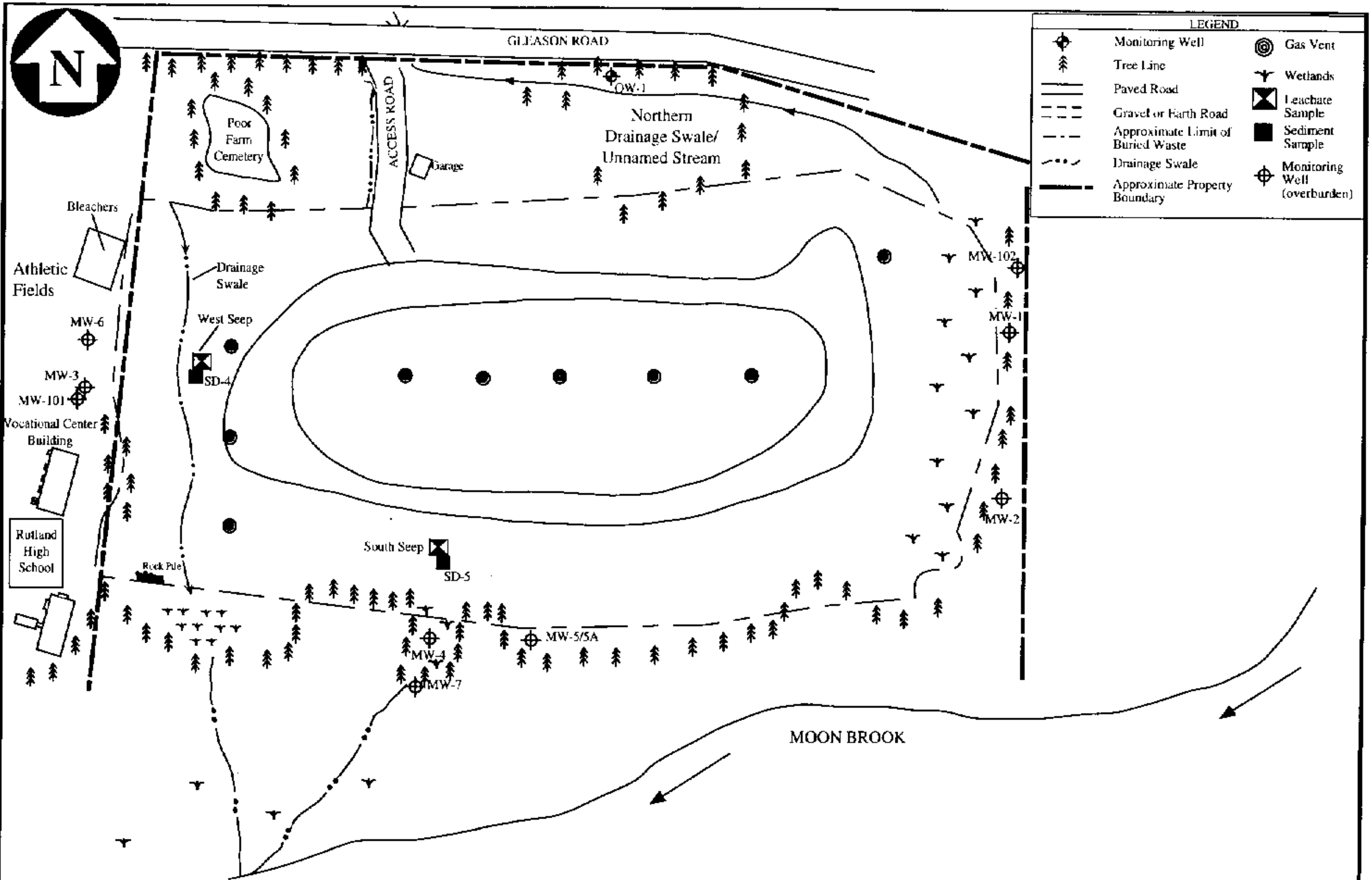
WASTE/SOURCE SAMPLING

On November 4, 1987, VTDEC collected two sediment samples from leachate seeps emanating from the landfill (see Figure 3: SI Source Sampling Locations). VTDEC used a shovel to access soils potentially contaminated by landfill leachate. Though these are not soil samples collected to determine the extent of contamination, they were collected to determine the contaminants possibly migrating from the landfill. Sediment sample SD-04, collected from a seep to the west of the landfill, was analyzed for semivolatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), and metals. An aqueous sample (west seep) was collected from a hole dug at this location and analyzed for volatile organic compounds (VOCs). Sediment sample SD-05 was collected from an area of apparent groundwater discharge to the south of the landfill. The water was stained orange. The sediment samples were analyzed for SVOCs, pesticides, PCBs, and metals. An aqueous sample (south seep) was collected from a hole dug at this location and analyzed for VOCs [43].

No VOCs, SVOCs, or pesticides/PCBs were detected in the western seep location. No VOCs or pesticides/PCBs were detected in the southern seep location. Nickel was detected in SD-04 at 4.2 milligrams per kilogram (mg/kg). Eight SVOCs were detected in SD-05 at concentrations exceeding detection limits: fluoranthene (500 micrograms per kilogram [μg/kg]), benz(a)anthracene (340 μg/kg), benzo(a)pyrene (560 μg/kg), benzo(b)fluoranthene (460 μg/kg), benzo(k)fluoranthene (390 μg/kg), chrysene (410 μg/kg), benzo(g,h,i)perylene (350 μg/kg), and pyrene (580 μg/kg). Nickel was detected in SD-05 at 4.0 mg/kg [43].

Samples collected for VOC and metals fraction analyses were analyzed by the VTDEC laboratories. Samples collected for SVOC, PCBs, and pesticides fractions analyses were analyzed by Aquatec, Inc [43].

Subsequent to the VTDEC sampling, the landfill has been capped and seeded. CDM did not note any leachate outbreaks or areas where landfill material is exposed. A small area of eroded soil was noted in the southeast corner of the landfill; no waste material was visible [1].



SOURCE: ADAPTED FROM DUBOIS & KING. 1989. SITE PLAN. DRAWING 7069. AND VTDEC. 1987. SITE INSPECTION REPORT.

NOT TO SCALE

SI SOURCE SAMPLING LOCATIONS
RUTLAND CITY LANDFILL
RUTLAND, VERMONT

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

Figure 3

Table 3 presents a summary of the samples collected from the landfill that indicate the condition of the landfill leachate prior to the closing and subsequent capping of the landfill surface. Samples sent to Aquatec, Inc. were given sample numbers, as presented below; sample collection times are not available to CDM.

TABLE 3

Sample Summary: Rutland City Landfill Source Samples Collected by the Vermont Agency of Natural Resources on November 4, 1987

Sample Location No.	Sample No.	Time	Remarks	Sample Source
MATRIX: Sediment (soil)				
West Seep (SD-4)	AQ 77238 (BNA;P/PCB) 33658 (AES) 33672 (I)	N/A	Depth unknown; Analyzed for metals, SVOCs, P/PCBs	A seepage area beyond the western boundary of the landfill, just east of the athletic fields.
South Seep (SD-5)	AQ 77239 (BNA;P/PCB) 33659 (AES) 33673 (I)	N/A	Depth unknown; Analyzed for metals, SVOCs, P/PCBs	An area of apparent groundwater discharge from the south toe of the landfill, near MW-7
MATRIX: Groundwater (leachate)				
West Seep	N/A	N/A	Depth unknown; Analyzed for VOCs	Collected from hole dug for SD-4.
South Seep	N/A	N/A	Depth unknown; Analyzed for VOCs	Collected from hole dug for SD-5.

N/A = Information not available/applicable
P/PCB = Pesticide/polychlorinated biphenyl
SVOC = Semivolatile organic compound
VOC = Volatile organic compound
(AES) = Acid extractable semivolatile organic compound analyses
(BNA) = Base/neutral extractable semivolatile organic compounds
(I) = Inorganic analyses

[43]

Table 4 presents a summary of the analytical results of the samples collected by VTDEC in 1987. For each sample location, a compound or analyte is listed if it has been detected at or greater than three times the reference sample concentration. If a compound or analyte was not detected in the appropriate reference sample, then compounds and analytes detected in downstream samples are reported if they exceeded the reference sample detection limit. There was no appropriate background sample; however, given the low concentrations of substances detected in both sample sets, collection of a background sample would not have significantly changed the evaluation of the landfill. The SVOCs detected in SD-5 were compared to the detection limits for sample SD-4.

TABLE 4

Summary of Analytical Results
Sample Analysis for
Rutland City Landfill

Sample Location No.	Compound	Concentration ($\mu g/kg$)	Reference Concentration ($\mu g/kg$)	Comments[1]
SD-5	benz(a)anthracene	340	330 U	1.0 x DL
	benzo(a)pyrene	560	330 U	1.7 x DL
	benzo(b)fluoranthene	460	330 U	1.4 x DL
	benzo(k)fluoranthene	390	330 U	1.2 x DL
	chrysene	410	330 U	1.2 x DL
	benzo(g,h,i)perylene	350	330 U	1.1 x DL
	fluoranthene	500	330 U	1.5 x DL
	pyrene	580	330 U	1.8 x DL

1 = Numbers truncated to report significant digits
DL = Detection limit
U = Indicates the sample was analyzed but not detected and reports the detection value.
$\mu g/kg$ = Micrograms per kilogram

[43]

GROUNDWATER PATHWAY

The soils surrounding the landfill are predominantly silty and fine-sandy loams, very stony, and form shallow slopes. Surficial materials underlying the soils are glacial till, poorly-drained and bouldery. This till characteristically is poorly sorted with grain sizes ranging from clay to boulders; however, they tend to be higher in sand content than "typical" tills and are therefore more permeable than usual. Yields from wells drilled in this till range from 3 to 30 gallons per minute (gpm) [47,48].

Bedrock in the vicinity of the landfill is mapped as Cambrian-age Winooski Dolomite, described as pink, buff, and gray dolomite. The Winooski Dolomite outcrops just to the west of the landfill; this formation is highly fractured. A small outcrop was also noted to the north of the landfill operations shed. Groundwater is known to occur in joints and solution-enlarged fractures allowing for potentially high groundwater yields from wells that intercept a sufficient number of these fractures. Yields from wells drilled in the bedrock range from 4 to 100 gpm [48].

Groundwater is perched on unweathered till, making it a major controlling factor in the shallow groundwater flow direction. Groundwater flows regionally from the topographically high mountains to the east to Otter Creek River Basin to the west. A perched shallow groundwater table within the landfill causes groundwater to flow radially to the north, west, and south [48]. The existence of relatively identical groundwater elevations in bedrock and overburden wells indicate that the two aquifers are interconnected [48]. The depth to groundwater measured in onsite monitoring wells ranges from 5 to 18 feet [6,48]. The approximate depth to bedrock from the natural grade ranges from 10 to 20 feet [48]. The depth to bedrock from the top of the capped landfill is approximately 75 feet. The maximum depth of fill measured from the natural grade to the top of the capped landfill is 55 feet [48].

In 1985, the Vermont legislature enacted Chapter 48 of Title 10 requiring that groundwater sources be assigned to one of four classes and that the state control land use within each class. A U.S. Geological Survey publication makes reference to four groundwater quality classes; however, the VTDEC Water Quality Division does not maintain records of regional water quality. Groundwater in Vermont is generally suitable for human consumption and most other uses, and is the primary water supply for about 54 percent of the population. In 1986, Rutland County had between 11 and 20 active municipal landfills, the highest number for all counties in Vermont [40].

There are private, public community, and non-public community drinking water sources within 4 miles of the landfill [45,46]. The well nearest to the landfill is a private well located 300 feet to the north [6,43]. The nearest private well used as a drinking water source is located 450 feet to the northwest of the landfill [27,28,29]. The majority of the population of Rutland is served by the Rutland DPW Water Department. The DPW maintains an off-line anthropogenic reservoir located 1.9 miles to the northeast of the landfill. The 80 to 90-million gallon reservoir is fed by a surface water intake located on the Mendon River, also to the northeast of the landfill. The Mendon River Watershed consists of the western side of the Blue Ridge and East Mountains. The DPW maintains approximately 5,700 connections serving approximately 18,000 people. The Mendon River is not in the surface water pathway [23].

There are eight public community water systems within 4 miles of the landfill serving an estimated 1,125 people. CDM did not document the exact number, location, or population served by non-public community water systems (i.e., restaurants and hotels) within 4 miles of the landfill because most of these systems serve a transient population. The VTDEC Water Supply Division has established primary and secondary wellhead protection areas (WHPAs) for public drinking water supply wells in Vermont. The WHPA for the Rocky Ridge Homeowners bedrock well is located approximately 0.8 mile to the southeast of the landfill [45,46]. The Rutland Town Fire Department Well #1 is a municipal well that serves 320 people in the town of Rutland [43].

Table 5 lists all public water supply wells, from nearest to farthest, within 4 miles of the Rutland City Landfill. The Hogge Penny Inn might serve a transient population, or the source is actually a gravel packed overburden well, because bedrock wells generally are not capable of supplying sufficient water volume to serve 500 people [48].

TABLE 5

Public Groundwater Supply Sources Within 4 Miles of Rutland City Landfill

Distance/ Direction from Property	Source Name	Location of Source (Town)	Estimated Population Served	Source Type*
0.6 mile east	Pico Villa	Rutland	29	1 bedrock
0.8 mile northeast	Green Acres Development (Rutland Town Fire Department #4)	Rutland	150	3 bedrock
0.9 mile southeast	Rocky Ridge Homeowners	Mendon	29	1 bedrock
1.2 miles east-southeast	East Mountain Water Corp.	Mendon	45	1 bedrock
1.2 miles east-southeast	East Ridge Acres	Rutland	105	1 bedrock
1.3 miles north-northwest	Hogge Penny Inn	Rutland	500	1 bedrock
2.1 miles north	Colonial Estates	Rutland	183	1 bedrock
3.1 miles west-southwest	Rutland Town Fire Department #1	Rutland	320	1 overburden
3.6 miles northwest	Oakrest Water System	Rutland	84	3 bedrock

*Overburden, Bedrock, or Unknown.

[23,45,46]

Frost Associates has estimated the number of private well users by summing the total number of drilled and dug wells within each distance ring and multiplying this figure by the average number of people per household for the region. This is an estimate, as the populations are based on CENTRACTS blocks used by the census bureau, a cartesian coordinate system, whereas the presented distances are based on a radial coordinate system [5]. There are several private drinking water wells along Gleason Road to the north and Route 4 to the northwest [2,6,27,28,29]. Municipal water is available for residences and businesses along both of these roads [6]. An estimated 2,436 private drinking water well users are within 4 miles of the landfill [5].

Table 6 presents a summary of populations receiving drinking water from both private and public wells located within 4 miles of the landfill.

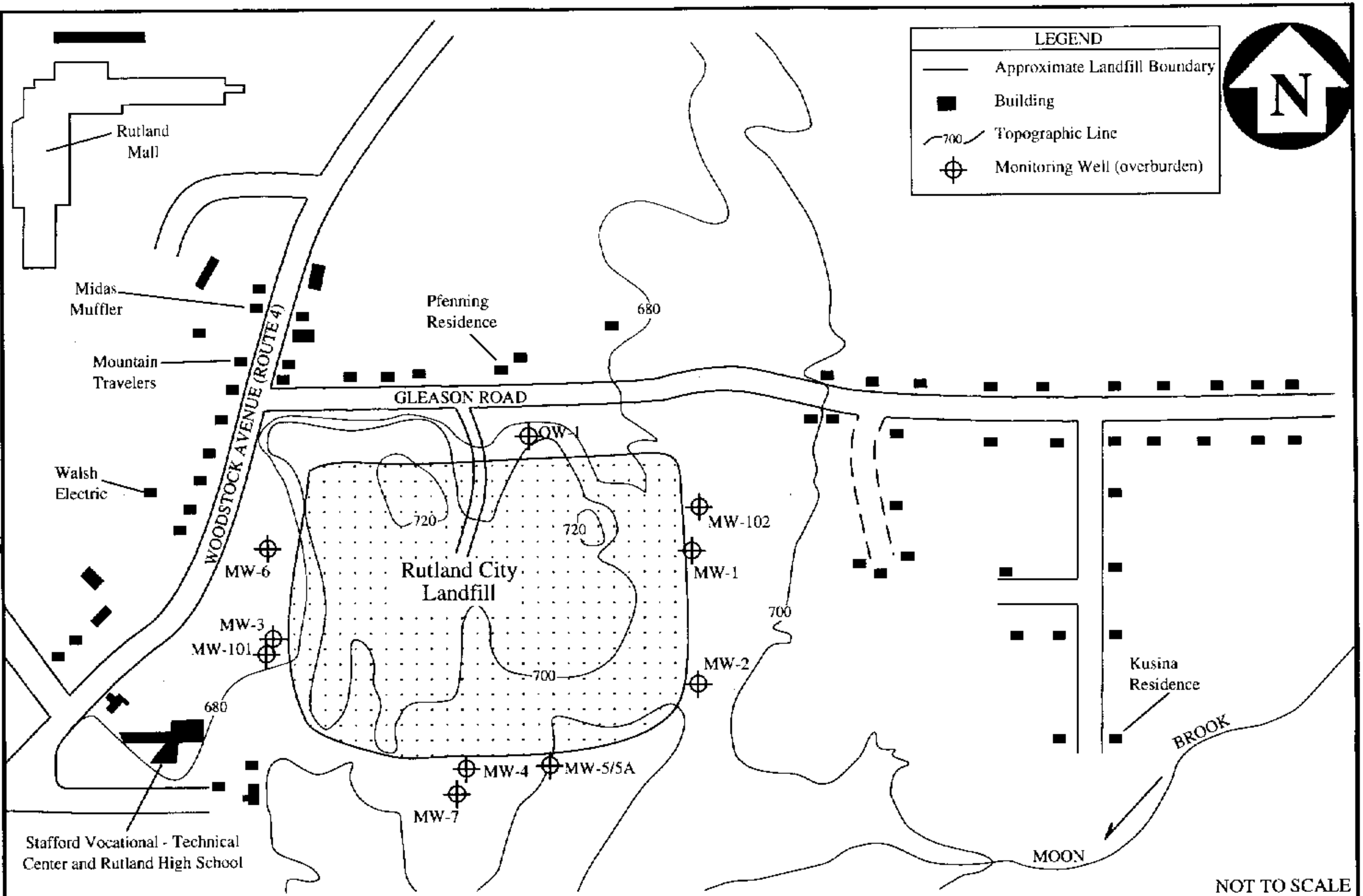
TABLE 6

Estimated Drinking Water Populations Served by Groundwater Sources Within 4 Miles of Rutland City Landfill

Radial Distance From Rutland City Landfill (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources Within the Ring
0.00 - 0.25	16	0	16
> 0.25 - 0.50	45	0	45
> 0.50 - 1.00	205	208	413
> 1.00 - 2.00	391	650	1,041
> 2.00 - 3.00	809	183	992
> 3.00 - 4.00	970	404	1,374
TOTAL	2,436	1,445	3,881

[5,6,16,17,18,19,20,23,45,46]

In 1985, Wagner and Associates installed six groundwater monitoring wells (MW-1 through MW-6); two each along the east, south, and west perimeters of the landfill (see Figure 4: Groundwater Sampling Locations). The monitoring wells were installed in test pits dug to observe general shallow subsurface conditions. The wells are 2-inch slotted PVC screened for 8 to 10-foot lengths. Wagner and Associates collected two rounds of samples from the six new wells and from one existing monitoring well (OW-1) [47]. Monitoring Well OW-W1 was possibly installed in 1975 as part of the Whitman & Howard Study [49]. All samples from both rounds had evidence of leachate contamination. Though regional groundwater flows to the west, the wells along the eastern side of the landfill (MW-1 and MW-2) are possibly located within the perched groundwater table created by the landfill. The test pits in which these wells were installed contained refuse materials, indicating that the wells were possibly installed directly in landfill materials. These wells are not appropriate background wells. The seven wells have been sampled semi-annually since 1985. The groundwater samples are analyzed for VOCs, inorganic elements, and landfill leachate indicators [47].



SOURCE: ADAPTED FROM: VTDEC. 1989. SITE INSPECTION REPORT, GEI CONSULTANTS. 1990. FINAL DATA SUMMARY REPORT, AND CDM FIELD OBSERVATIONS.

GROUNDWATER SAMPLING LOCATIONS
RUTLAND CITY LANDFILL
RUTLAND, VERMONT

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

Figure 4

Monitoring well MW-7 was installed in the fall of 1986. During the Wagner and Associates investigation, monitoring well MW-5 was disintegrating; Wagner and Associates installed MW-5A, a stainless steel well, in the same location [48]. In 1989, GEI hired Capital Environmental Drilling Services, Inc., to install groundwater monitoring wells MW-101 and MW-102 [6].

Table 7 summarizes the information compiled about the onsite monitoring wells installed between 1975 and 1989. GEI Consultants measured the well depths in 1989 and 1990; the well names were changed from the initial names established by Wehran Engineering and those currently used by Dufresne-Henry [6,31]. CDM has corrected these changes to maintain a consistent naming convention. The elevations presented are in feet MSL.

TABLE 7

Summary of Monitoring Wells Located on the Rutland City Landfill

Well Name	GEI Name	Installation Date	Installation Company	Well Depth[1] (feet)	Groundwater Elevation[2] (feet)
OW-W1	MW-1	1975[3]	Whitman & Howard	12.2	678.58[1]
MW-1	MW-8	1985	Wehran[4]	13.6	692.72[1]
MW-2	MW-2	1985	Wehran[4]	17.25	708.54[1]
MW-3	MW-3	1985	Wehran[4]	16.5	689.68[1]
MW-4	MW-4	1985	Wehran[4]	14.1	680.50[1]
MW-5A	MW-5A	1985	Wehran[4]	16.3	692.90[1]
MW-6	MW-6	1985	Wehran[4]	18.15	688.12[1]
MW-7	MW-7	1986	Wehran[4]	Unknown	Unknown
MW-101	MW-101	1989	CEDS	17.4	690.33[5]
MW-102	MW-102	1989	CEDS	34.1	690.82[5]

1 = Well depths and water levels measured by GEI Consultants, Inc. on August 1, 1989.
2 = Elevations surveyed by Dubois & King, Inc. to a temporary benchmark located on the landfill.
3 = Monitoring well OW-W1 was possibly installed as part of the landfill investigation completed by Whitman & Howard, Inc., in 1975.
4 = Wehran Engineering was Wagner & Associates, Inc., in 1985.
5 = Water levels measured by GEI Consultants, Inc. on February 15, 1990.
CEDS = Capital Environmental Drilling Services, Inc.

[31,47,48,49]

In 1987, VTDEC collected aqueous samples from the onsite monitoring wells and private wells located to the west and east of the landfill. All groundwater samples were analyzed for VOCs and metals. Additional samples were collected from MW-5A for SVOC, PCB, and pesticide analyses, and from MW-7 for SVOC analyses. Additional samples were collected from the Kusina Residence and the Vermont Bedrooms Company for SVOC, PCB, and pesticides analyses. The monitoring wells were bailed to dryness once before sampling; the VTDEC let the water run from the private wells for 15 minutes before collecting samples. Samples collected for SVOC and pesticide/PCB analyses were sent to Aquatec, Inc. Table 8 presents a summary of groundwater samples collected from the onsite monitoring wells and the private residences. Samples analyzed by Aquatec, Inc., were assigned sample numbers; collection times are not available to CDM [43]. CDM did not determine whether Aquatec, Inc., followed EPA Contract Laboratory Program (CLP) sample analyses protocol.

TABLE 8

Sample Summary: Rutland City Landfill Groundwater Samples Collected by the Vermont Agency of Natural Resources on November 4, 1987

Sample Location No.	Sample No.	Time	Analyses	Sample Source
MW-5A/5A DUP	AQ 77240/41 (O) 33655/54 (I)	N/A	VOCs, metals, SVOCS, and P/PCBs	Monitoring well located to the south of the landfill, within a wetland area.
MW-7	AQ 77242 (O) 33656 (I)	N/A	VOCs, metals, and SVOCs	Monitoring well located to the south of the landfill, south of MW-5A, also located in a wetland area.
Kusina Residence	AQ 77243 (O) 33660 (I)	N/A	VOCs, metals, SVOCs, and P/PCBs	Private well to the east of the landfill.
Midas Muffler Shop	33662 (I)	N/A	VOCs and metals	Private well located to the northwest of the landfill.
Vermont Bedrooms	AQ 77244 (O) 33663 (I)	N/A	VOCs, metals, SVOCs, and P/PCBs	Private well located to the west-northwest of the landfill.
Pfenning Residence	33661 (I)	N/A	VOCs and metals	Private well located to the north of the landfill.

N/A = Not available
P/PCB = Pesticide/Polychlorinated biphenyl
SVOC = Semivolatile organic compound
VOC = Volatile organic compound
(I) = Inorganic Analyses
(O) = Organic Analyses

[43]

Table 9 presents a summary of the contaminants detected in the aqueous samples collected from the onsite monitoring wells and the private wells. For each sample location, a compound or analyte is listed if it has been detected at or greater than three times the reference sample concentration. If a compound or analyte was not detected in the appropriate reference sample, then compounds and analytes detected in samples collected from private wells to the west of the landfill are reported if they exceeded the reference sample detection limit. The Kusina Residence well (drilled to 80 feet below ground surface) was used to establish background concentrations in the groundwater [7]. This well is not screened at the same elevation as the onsite monitoring wells; none of the onsite monitoring wells are appropriate background wells.

TABLE 9

Summary of Analytical Results
Sample Analysis for Rutland City Landfill

Sample Location No.	Compound/Analyte	Concentration (μg/l)	Reference Concentration (μg/l)		Comments[1]
MW-5A	1,2-dichloroethenes[2]	30	1.6	U	20 x DL
	1,2-dichloropropane	630	6.0	U	110 x DL
	Toluene	4,660	6.0	U	780 x DL
	Ethylbenzene	200	7.2	U	30 x DL
	Total xylenes[3]	750		ND	Detected
	Diethyl phthalate	110	10	U	10 x DL
	Phenol	600	10	U	60 x DL
	Benzoic acid	4,300	50	U	90 x DL
	4-methylphenol	4,200	10	U	400 x DL
	Arsenic	10	5	U	2 x DL
	Chromium	13	2	U	7 x DL
	Nickel	83	5	U	20 x DL
	Zinc	8	1		8 x REF
MW-5A DUP	1,2-dichloroethenes[2]	50	1.6	U	30 x DL
	1,2-dichloropropane	1,000	6.0	U	200 x DL
	Toluene	6,550	6.0	U	1,100 x DL
	Ethylbenzene	220	7.2	U	31 x DL
	Total xylenes[3]	809		ND	Detected
	Phenol	170	10	U	20 x DL

TABLE 9
(continued)

Sample Location No.	Compound/Analyte	Concentration ($\mu g/l$)	Reference Concentration ($\mu g/l$)		Comments[1]
MW-5A DUP	Benzoic acid	1,200	50	U	20 x DL
(continued)	4-methylphenol	1,300	10	U	100 x DL
	Arsenic	12	5	U	2 x DL
	Chromium	14	2	U	7 x DL
	Nickel	84	5	U	20 x DL
	Zinc	9	1		9 x DL
Midas Muffler Shop	Copper	21	7		3 x DL
	Lead	15	5	U	3 x DL
	Zinc	8	1		8 x REF
Vermont Bedrooms Company	1,2-dichloroethenes[2]	2	1.6	U	1 x DL
	Trichloroethene	3	1.9	U	1 x DL
	Copper	24	7		3 x REF
	Lead	14	5	U	3 x DL
	Zinc	113	1		113 x REF

1 = Numbers truncated to report significant digits
2 = Sum of cis and trans isomers
3 = Sum of meta-, ortho-, and para- isomers
Detected = Reported as detected; detection limit not available
DUP = Duplicate sample collected for quality control
REF = Reference concentration
DL = Detection limit
ND = Not detected; detection limit not determined for this compound
U = Indicates the analyte was analyzed for but not detected and reports the detection limit.
$\mu g/l$ = Micrograms per liter

[43]

In 1988, Wehran Engineering stated that the groundwater quality improved between MW-5A and MW-7, indicating that the wetland has a positive effect on the groundwater quality [48]. In a memorandum issued by VTDEC, this relationship was disputed, noting the difference in well construction, specifically, that MW-7 is a very shallow well, not accurately documenting the groundwater quality [11].

Following is a summary of analytical results for samples collected from selected monitoring wells since 1990. No VOCs have been detected in monitoring wells OW-1, MW-1, 3, 6, or 7 [2]. Benzene, ethylbenzene, chloromethane, and chlorobenzene have been detected at concentrations below 3 μg/l several times in MW-2. Total xylenes were detected once in 1993, at 7 μg/l in MW-2 [2].

VOCs detected in MW-4 include (with maximum concentrations in parentheses): chloroethane (5 μg/l), 1,1-dichloroethene (1 μg/l), 1,2-dichloroethene (total) (2 μg/l), benzene (18 μg/l), toluene (6 μg/l), ethylbenzene (2 μg/l), total xylenes (7 μg/l), 1,2-dichloropropane (1 μg/l), methylene chloride (18 μg/l), chloroform (1 μg/l), trichlorofluoromethane (2 μg/l), chloromethane (33 μg/l), and 1,4-dichlorobenzene (2 μg/l) [2].

VOCs detected in MW-5/5A include (with maximum concentration in parentheses): vinyl chloride (2 μg/l), chloroethane (4 μg/l), 1,1-dichloroethane (16 μg/l), 1,2-dichloroethene (total) (50 μg/l), trichloroethene (130 μg/l), benzene (690 μg/l), toluene (9,800 μg/l), ethylbenzene (880 μg/l), total xylenes (1,700 μg/l), 1,2-dichloropropane (1,000 μg/l), methylene chloride (2,200 μg/l), acetone (6,600 μg/l), methyl ethyl ketone (3,020 μg/l), 2-hexanone (126 μg/l), 4-methyl-2-pentanone (6,200 μg/l), chloroform (1,300 μg/l), trichlorofluoromethane (460 μg/l), trans-1,3-dichloropropane (3,200 μg/l), chloromethane (5 μg/l), and 1,4-dichlorobenzene (4 μg/l) [2].

Inorganic elements detected in MW-4 (listed as dissolved unless noted) include total iron (56.7 mg/l), cadmium (0.007 mg/l), chromium (0.01 mg/l), copper (0.018 mg/l), lead (0.0078 mg/l), total manganese (2.1 mg/l), nickel (0.08 mg/l), and zinc (0.065 mg/l) [2].

Inorganic elements detected in MW-5/5A (listed as dissolved unless noted) include total iron (2,249 mg/l), cadmium (0.028 mg/l), chromium (2.9 mg/l), copper (0.04 mg/l), lead (0.33 mg/l), total manganese (20 mg/l), nickel (0.371 mg/l), and zinc (0.277 mg/l) [2].

Since May 1992, 2 years after the landfill capping was completed, cadmium, chromium, copper, lead, and nickel have not been detected in any of the onsite monitoring wells; analytical detection limits have been reduced since 1986 (see Attachment A for a summary of groundwater analytical results) [2].

Table 10 presents a history of groundwater quality parameters for two monitoring wells on the landfill. Monitoring well MW-5/5A, installed to the south of the landfill materials, has had the highest concentrations of total VOCs and inorganic elements. Well MW-101 (drilled to bedrock to the west of the landfill materials) is included to show the concentrations of contaminants migrating from the landfill to the west in the overburden groundwater. Wells MW-3 and MW-6, also located to the west of the landfill, have contained similar contaminant concentration levels [2].

TABLE 10

History of Groundwater Quality in Selected Wells at the Rutland City Landfill

Substance	Well MW-5/5A			Well MW-101			MCL
	Prior to 5/93[1]	5/93	5/94	Prior to 5/93[1]	5/93	5/94	
Inorganic Elements (mg/l)							
Cadmium	0.028	<0.0005	<0.0005	0.002	<0.0005	<0.0005	0.005
Chromium	2.9	<0.005	<0.005	0.01	<0.005	<0.005	0.1
Copper	0.04	<0.03	<0.03	0.05	<0.03	<0.03	TT [xx]
Iron	2,249	14.7	11.3	39.7	14.7	14.7	NE
Lead	0.33	<0.003	<0.003	0.000015	<0.003	<0.003	TT [xx]
Manganese	20	1.8	0.41	2.2	1.8	1.8	NE
Nickel	0.371	<0.05	<0.05	<0.05	<0.05	<0.05	0.1
Zinc	0.227	<0.005	<0.005	0.126	<0.005	<0.005	NE
Selected Organic Contaminants (μg/l)							
1,1-Dichloroethane	<10	<1	<1	<2	<1	<1	NE
Tetrachloroethene	<1	<1	<1	<2	<1	<1	5
Toluene	>10,000	<1	25	<2	<1	<1	1,000
Xylenes (total)	1,700	13	509	<2	<1	<1	10,000

1 = The highest concentration detected prior to May 1993.
TT = Treatment Technique; no more than 5 percent of the samples per month may be positive.
xx = Action limit for copper = 1.3 mg/l; action limit for lead = 0.015 mg/l.
NE = None established
MCL = Maximum Contaminant Level for contaminants in Public Drinking Water Supplies.
mg/l = milligrams per liter
μg/l = micrograms per liter

[2]

Since 1985, VTDEC and environmental consultants for the city of Rutland have conducted annual and semi-annual sampling rounds at as many as 10 bedrock and surficial private wells [2,6,32]. The wells most regularly sampled are Midas Muffler, Mountain Traveler, Walsh Electric, and Dunham's Shoes to the west and northwest of the landfill, and Kusina Residence to the east of the landfill [2]. In 1993, VOCs were detected in three private wells located to the west and northwest of the landfill [2]. Only one of these private wells, a business located on Route 4, was using the well water as a drinking water source. This business employs 12 people who use the water to make coffee. The remainder of the private well owners use the well water only for non-drinking uses [27,28,29]. The Rutland DPW Water Department's water distribution lines extend the entire length of Route 4 within 4 miles of the landfill and on Gleason Road [6,43].

The groundwater quality results from the samples collected from the onsite groundwater monitoring wells since 1985 do not indicate the full nature of potential groundwater contamination at the landfill. The VOCs 1,2-dichloroethene, trichloroethene, tetrachloroethene, 1,1,2,2-tetrachloroethane, and 1,1-dichloroethane have been detected in all of the private wells located to the west of the landfill in different combinations at concentrations of 1 to 2 $\mu g/l$ [2]. Tetrachloroethene and 1,1,2,2-tetrachloroethane have not been detected in the landfill and trichloroethene has been detected in only one sample; therefore, a direct relationship between the landfill and contaminated private wells has not been established [2].

The above-listed VOCs are dense non-aqueous phase liquids (DNAPLs). DNAPLs are denser than water, resulting in their sinking through groundwater to a confining layer (either bedrock or a material with lower permeability, such as clay). DNAPLs can sink to bedrock and then either flow along the surface of the bedrock, or enter bedrock fractures, migrating in unexpected directions [8]. While the onsite monitoring wells have not contained the VOCs listed (except 1,1-dichloroethane), it is still possible that the contamination originates from the landfill. The deepest monitoring well on the west side of the landfill is MW-101, drilled to a depth of 17.4 feet below ground surface [6]. While the drilling was advanced into the fractured bedrock, it is screened in the overburden materials [6]. The private wells to the north and west of the landfill are all drilled wells ranging in depths of 100 to 250 feet below ground surface [6,7]. Because of the difference in the elevations of the screened intervals of these wells to the onsite monitoring wells, it is difficult to compare the analytical results of the private wells to the onsite monitoring wells. While Wehran Engineering reported that the bedrock dips to the south/ southeast, the exact structure of the formation is unknown [7,48].

The VOCs listed belong to a class of chlorinated VOCs. These chlorinated VOCs are known to degrade in groundwater, losing chlorine atoms to hydrogen atoms. Tetrachloroethene (with four chlorine atoms) eventually degrades to trichloroethene (with three chlorine atoms) which, in turn degrades to 1,1-dichloroethene (with two chlorine atoms) (see Attachment B) [4]. Each of these compounds has additional degradation products [4]. Waste solvents, such as those deposited in the landfill by the various industrial facilities in Rutland, are known to have contained several of these VOCs [43]. A possible explanation of the detection of 1,1-dichloroethane in the onsite monitoring wells is that this compound is the least dense of all the VOCs mentioned; 1,1-dichloroethane will not sink as rapidly in the groundwater as the other VOCs, possibly resulting in its detection in the onsite monitoring wells [10]. The denser VOCs sink more rapidly, flowing in the groundwater at elevations below the screened intervals of the onsite monitoring wells (also possibly in the bedrock fractures) only to be pumped out with the groundwater by some of the deep overburden and bedrock wells to the west of the landfill [8]. The private wells located to the west of the landfill have high recharge rates, indicating that materials into which they were installed are very permeable [6,7].

SURFACE WATER PATHWAY

The landfill is a local topographic high point; the top of the landfill is slightly higher than 700 feet MSL. Runoff flows in all directions [43,47,48]. As part of the landfill closure activities, the sides of the landfill were graded and seeded to prevent water buildup and erosion by stormwater runoff [3]. There are two probable points of entry (PPEs) of contaminants potentially migrating from the landfill and entering a perennially wet surface water body. Most of the overland flow is directed south from the landfill into a wetland area. The wetland area abuts Moon Brook to the south. Some runoff also flows north, where it collects in a depression that eventually carries water to an unnamed tributary [37,43,48].

From the first PPE, surface water flows south approximately 200 feet in the wetland area into Moon Brook. Moon Brook flows 2.8 miles west southwest to its outlet into Otter Creek. Otter Creek flows 0.8 mile north where it is joined by East Creek. Otter Creek then flows north 11.4 miles for the remainder of the surface water pathway (all surface water bodies within 15 downstream miles of the PPE) [36,37,38,39].

Surface water also flows north into the unnamed tributary. Water flows 0.6 mile in the unnamed tributary to Tenney Brook, 2.0 miles west southwest in Tenney Brook to the East River; and 1 mile south in the East River to Otter Creek [37,38].

The U.S. Geological Survey does not maintain any flow rate gages on Tenney Brook or Moon Brook [26,41]. During CDM's onsite reconnaissance, the field team and a representative from Dufresne-Henry estimated the flow of Moon Brook, upstream of Combination Pond, to be between 3 and 5 cubic feet per second (cfs) [1]. Comparing Tenney Brook to similar gaged brooks in the area, its annual mean flow rate is estimated to be between 10 and 100 cfs [41]. The East River drainage basin covers approximately 51.1 miles. The flow rate per square mile of drainage area in this area fluctuates between 1.4 and 1.8; taking the highest value of 1.8, the annual mean flow rate of the East River is approximately 90 cfs. The annual mean flow rate of Otter Creek, as gaged in Rutland Center for 66 years between 1928 and 1993, is 551 cfs [41].

Moon Brook is impounded approximately 1,200 feet downstream of the PPE to form a small pond known as Combination Pond [43]. The brook appears to have a capacity for a mean annual flow of 10 cfs. The pond is located in a residential area where it is stocked with trout and used for fishing by local children [43]. According to the Vermont Digest of Fish and Wildlife, all streams (including brooks, streams, and rivers) are trout waters, except specifically Otter Creek downstream from Rutland Center. Additional fish species commonly found in Vermont streams are bass, pike, pickerel, and salmon [42]. Though Moon Brook runs nearly dry in the late summer months, brook trout possibly live in small pools in the brook. The Vermont Department of Fish and Wildlife does not know whether people fish in the brook [32].

Though there are two PPEs, there is only one surface water pathway, because both flow paths eventually join in Otter Creek. Table 11 lists the surface water bodies within the surface water pathway. Because the pathway via Moon Brook is the primary route for overland flow from the landfill, the Tenney Brook migration pathway has not been summarized. The length of wetlands for the wetland area abutting the landfill to the south includes the entire perimeter of the wetlands, from the PPE on the northern side directly south to Moon Brook and, from the PPE, southwest until the wetlands end (see Figure 2: Site Sketch).

TABLE 11

Water Bodies Within the Surface Water Segment of Rutland City Landfill

Surface Water Body	Descriptor[a]	Length of Reach	Flow Characteristics (cfs)[b]	Length of Wetlands (feet)
Wetland	Minimal stream	200 feet	<10	400
Moon Brook (downstream of Combination Pond)	Small to moderate stream	2.8 miles	10 to 100	1,000
Otter Creek	Moderate to large stream	12.2 miles	551	Unknown

a Minimal stream. Small to moderate stream. Moderate to large stream. Large stream to river. Very large river. Coastal tidal waters. Shallow ocean zone or Great Lake. Deep ocean zone or Great Lake. Three-mile mixing zone in quiet flowing river.

b Cubic feet per second.

[26,36,37,38,39,40,43]

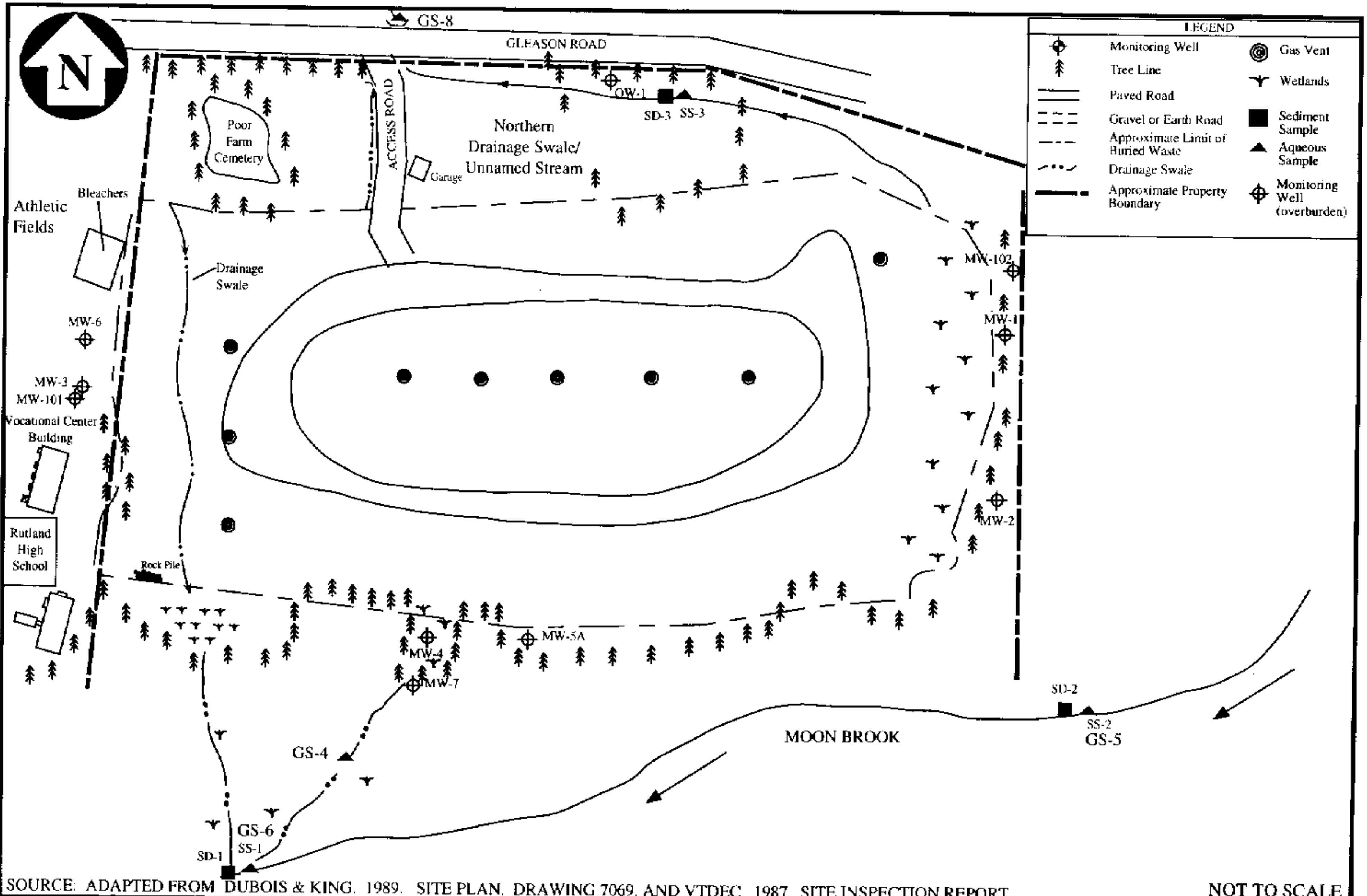
In addition to the wetland area abutting the landfill to the south are approximately 300 feet of wetlands to the north of the landfill, located between the landfill and the unnamed brook; 1,000 feet of wetland vegetation bordering both sides of Moon Brook downstream of Combination Pond; and several additional shorter sections of wetland vegetation bordering Tenney Brook, East River, and Otter Creek [36,37,38,39,43].

The Vermont Agency of Natural Resources maintains a data base for occurrences of significant natural communities and threatened and endangered animals or plants. The data base does not have any entries for the areas along the surface water pathway [9].

The VTDEC, Water Quality Division, has assigned water quality designations to the following streams in the surface water pathway: Tenney Brook (Class A), East River (Class A), Moon Brook (Class A), and Otter Creek (Class A). All surface waterbodies that have not been assigned a water quality classification are Class B [25]. There are no surface water intakes in any of these waterbodies. According the VTDEC, Water Quality Division, Class A waterbodies are suitable sources of "public water supply, with disinfection when necessary, when compatible, for the enjoyment of water in its natural condition." This includes use for irrigation and other agricultural uses, swimming, and recreation [12].

Between 1985 and 1986, Wehran Engineering took conductivity readings and collected grab surface water samples from four locations at the landfill. It labeled these samples GS-4, 5, 6, and 8 (see Figure 5: Surface Water Sampling Locations). Surface water sample, GS-6, was collected from Moon Brook, downstream of where the runoff from the wetland to the south of the landfill discharges to the brook. Sample GS-4 was collected in the runoff path near the wetland located to the south of the landfill. Sample GS-5 was collected from Moon Brook, upstream of the landfill leachate seeps. This sample was collected as a background sample for contaminant concentrations in Moon Brook. Sample GS-8 was collected from the unnamed stream to the north of the landfill, north of Gleason Road. Because the landfill is the headwaters of the unnamed stream, there is no appropriate background for this sample. The grab samples were analyzed for iron, manganese, and chloride. Compared to GS-5, the background sample collected from Moon Brook, samples GS-4, 6, and 8 had elevated levels of iron, manganese, and chloride. The samples collected from GS-8 maintained the highest concentrations of these analytes [48].

In 1987, as part of the SI, VTDEC collected two aqueous samples and two sediment samples from Moon Brook. One aqueous and sediment sampling pair (SS-2/SD-2) was collected upstream of the PPE and one sampling pair (SS-1/SD-1) was collected downstream of the PPE. VTDEC also collected a sample pair (SS-3/SD-3) from the unnamed stream (see Figure 5: Surface Water Sampling Locations). The aqueous samples were analyzed for VOCs and inorganic analytes. The sediment samples were analyzed for VOCs, pesticides/PCBs, and inorganic analytes. Samples collected for SVOC and pesticide/PCB analyses were sent to Aquatec, Inc [43].



SURFACE WATER SAMPLING LOCATIONS
RUTLAND CITY LANDFILL
RUTLAND, VERMONT

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

Figure 5

Table 12 presents a summary of the sediment and surface water samples collected from the landfill by VTDEC in 1990. Samples sent to Aquatec, Inc., were assigned sample numbers; sample collection times were not available to CDM.

TABLE 12

Sample Summary: Rutland City Landfill
Samples Collected by the Vermont
Agency of Natural Resources on November 4, 1987

Sample Location No.	Sample No.	Time	Analyses	Sample Source
MATRIX: Sediment (soil)				
Moon Brook (SD-1)	AQ 77235 (BNA) 33654 (AES) 33669 (I)	N/A	SVOCs, metals, and P/PCBs	Collected from Moon Brook downstream of runoff point from the wetland area near MW-7.
Moon Brook (SD-2)	AQ 77236 (BNA) 33656 (AES) 33670 (I)	N/A	SVOCs, metals, and P/PCBs	Collected from Moon Brook upstream of the landfill.
Unnamed Stream (SD-3)	AQ 77237 (BNA) 33657 (AES) 33671 (I)	N/A	SVOCs, metals, and P/PCBs	Sample collected midway along the unnamed stream located to the north of the landfill.
MATRIX: Surface Water (aqueous)				
Moon Brook (SS-1)	33657 (I)	N/A	VOCs and metals	Same as SD-1
Moon Brook (SS-2)	33658 (I)	N/A	VOCs and metals	Same as SD-2
Unnamed Stream (SS-3)	33659 (I)	N/A	VOCs and metals	Same as SD-3

N/A = Not available
P/PCB = Pesticide/Polychlorinated biphenyl
SVOC = Semivolatile organic compound
VOC = Volatile organic compound
(AES) = Acid extractable semivolatile organic compound analyses
(BNA) = Base/neutral extractable semivolatile organic compound analyses
(I) = Inorganic Analyses

[43]

Table 13 presents a summary of contaminants detected in the sediment and surface water samples collected from Moon Brook and the unnamed stream. For each sample location, a compound or analyte is listed if it has been detected at or greater than three times the reference sample concentration. If a compound or analyte was not detected in the appropriate reference sample, then compounds and analytes detected in downstream samples are reported if they exceeded the reference sample detection limit. Sample SS-2/SD-2 is the background sample for the downstream Moon Brook sample, SS-1/SD-1, and the unnamed stream sample, SS-3/SD-3.

TABLE 13

Summary of Analytical Results
Sample Analysis for Rutland City Landfill

Sample Location No.	Compound/Analyte	Concentration	Reference Concentration	Comments[1]
MATRIX: Sediment (mg/kg)				
SD-1	Arsenic	6.1	1.6	3.8 x REF
	Nickel	1.8	0.9 U	2.0 x DL
SD-3	Lead	8.0	2.5	3.2 x REF
MATRIX: Surface Water (aqueous) (μg/l)				
SS-1	Copper	14	2	7 x REF
	Zinc	9	3	3 x REF
SS-3	Copper	8	2	4 x REF

1 = Numbers truncated to report significant digits
REF = Reference concentration
DL = Detection limit
U = Indicates the sample was analyzed but not detected and reports the detection value.
mg/kg = milligrams per kilogram.
μg/l = Micrograms per liter

[43]

No VOCs were detected in either aqueous sample collected from the brook. Copper was detected at 14 μg/l in SS-1, 7 times the concentration of copper in SS-2. Zinc was detected at 9 μg/l in SS-1, 3 times the concentration of zinc in SS-2 [43].

No SVOCs were detected in either sediment sample collected from the brook. No pesticides/PCBs were detected in either sediment sample collected from the brook. Arsenic was detected at 6.1 mg/kg in SD-1, 3.8 times the concentration of arsenic in SD-2. Nickel was detected at 1.8 mg/kg in SD-1, while it was not detected above the 0.9 mg/kg detection limit in SD-2. Copper, zinc, and arsenic were not detected at elevated concentrations in either leachate sample collected by the VTDEC [43].

No VOCs were detected in SS-3. No background samples are available for this location (the drainage swale starts at the landfill); therefore, the concentrations of contaminants were compared to those detected in the surface water and sediments collected from Moon Brook (SS-2 and SD-2). Copper was detected in SS-3 at 8 μg/l, 4 times the concentration of copper in SS-2. No SVOCs or pesticides/PCBs were detected in SD-3. Lead was detected in SD-3 at 8 mg/kg, 3.2 times the concentration of lead in SD-2 [43].

Dufresne-Henry has continued collecting aqueous samples from two surface water runoff locations (GS-6 and GS-8) on a semiannual schedule. The samples have been analyzed for VOCs and metals. No VOCs have been detected at either sample location. Manganese continues to be detected in GS-8 at elevated concentrations. Cadmium, chromium, copper, and lead have not been detected at either sample location. Nickel was detected once in GS-8 in 1994 at 7 μg/l. Zinc has been detected in GS-6 at a high of 32 μg/l and in GS-8 at 30 μg/l (see Attachment A for a summary of surface water analytical results) [2]. The Ambient Water Quality Criteria (AWQC) established by the Clean Water Act, as amended, for nickel is 160 μg/l and for zinc is 110 μg/l. No AWQCs have been established for manganese [34].

SOIL EXPOSURE PATHWAY

The landfill has been inactive since 1990. In 1990, the Rutland DPW completed the landfill closure by applying the last portions of cover required to meet the closure plan specifications as outlined in the revised closure plan approved by VTDEC, Solid Waste Management Division in August 1990. Two feet of relatively impermeable clay material were placed on the fill material. Additionally, 6 inches of topsoil were added, which were subsequently seeded. CDM noted a small section in the southeast corner of the landfill where the topsoil has washed away, exposing a sand and gravel fill [3,22]. No exposed landfill materials were noted by CDM [1].

No people are employed by the Rutland landfill. The Rutland County Solid Waste District employs six people in the various transfer station and recycling program activities. The activities of the employees are focused in the northwest corner of the property [1]. The landfill materials are located within the boundaries of the property; therefore, those properties abutting the landfill to the south, west, east, and north are not located within 200 feet of the landfill materials [3,43,48,49].

The Stafford Vocational-Technical Center School has been located to the southwest of the landfill since 1973. 375 students attend Stafford during the day, and 425 students attend during the evenings and weekends [30]. The Rutland High School opened to 925 students at this location in September 1994 [30]. There are no access barriers to the landfill. CDM noted two high school teachers plotting an orienteering course for the students on the top of the southern section of the landfill [1]. There are no day-care facilities within 200 feet of the landfill [37,38].

CDM did not document any terrestrial sensitive environments on the landfill property. There were indications of migrant deer and other small animal presence in the southern end of the landfill property. During an onsite reconnaissance, VTDEC noted that the area to the south of the landfill, between the wetland and Moon Brook was used by children as a play area [43].

Approximately 800 people live within a 1-mile travel distance from the landfill [5]. In 1987, VTDEC collected two leachate samples from the landfill. These samples were collected from exposed areas on the landfill surface [43]. Subsequently, the landfill has been closed and covered [1,22,23]. See the Waste/Source Sampling section for a discussion of the results.

AIR PATHWAY

The landfill was closed and covered in 1990. More than 2 feet of clean fill and relatively impermeable materials were placed on the landfill. Also, as part of the landfill closure, nine gas vents were installed in the landfill. The gas vents were installed to allow for the gradual release of methane, a gas generated by the degradation of materials deposited in the landfill, and other gases [3,22]. Three gas vents located along the western property boundary, are within 1,000 feet of the Rutland High School [3]. The six Rutland County employees are located closest to the landfill [1]. Additionally, there is the school located to the southwest of the landfill and residential properties to the east and south of the landfill [1]. The residences are all located more than 500 feet from the landfill [37].

Table 14 lists the populations located within 4 miles of the landfill. The total includes the number of students attending the two schools located to the west of the landfill and the employees located at the landfill, but not other workers located within 4 miles of the landfill.

TABLE 14

Estimated Population Within 4 Miles of Rutland City Landfill

Radial Distance From Rutland City Landfill (miles)	Estimated Population
Onsite	6
0.00 - 0.25	1,939
> 0.25 - 0.50	578
> 0.50 - 1.00	1,360
> 1.00 - 2.00	13,515
> 2.00 - 3.00	5,350
> 3.00 - 4.00	2,140
TOTAL	24,888

[5,30]

During all field activities, CDM monitors the concentration of total VOCs in the ambient air using an organic vapor monitor (OVM). During the onsite reconnaissance conducted in 1994, the OVM did not register any VOCs above its detection limit of 0.1 ppm [1].

Wetlands are located along the entire eastern boundary of the landfill and in two smaller areas to the south and southwest of the landfill. The wetland species have been identified by the U.S.

Fish and Wildlife Service as *Phragmites*, an aggressive plant. The eastern wetland area has grown in size since the closing of the landfill [1].

ANR maintains a data base for occurrences of significant natural communities and threatened and endangered animals or plants. The data base does not list any such findings within 3 miles of the landfill. The warm calcareous talus woodland, a significant natural community, and the white-flowered leafcup, a federal-listed threatened and state-listed endangered species are both located between 3 and 4 miles from the landfill [9].

SUMMARY

The Rutland City Landfill (landfill) is located on Gleason Road in Rutland, Rutland County, Vermont. The landfill occupies the northern 25 acres of a 40-acre parcel of land owned by the city of Rutland.

Between the 1930s and 1988, approximately 300,000 tons of solid waste were deposited at the landfill. Additionally, hazardous wastes, including waste solvents, plating wastes, and formaldehyde glue were deposited in the landfill by local industrial facilities. The landfill was capped in 1990 and is no longer active. The landfilling activities and subsequent capping have created an artificial topographic high in the region. The landfill cap consists of 2 feet of clay material spread over the 1 foot of regular cover. Much of the perimeter of the landfill property is wooded; portions of the eastern and southern side are in low-lying wetland areas.

Between 1975 and 1990, several engineering consulting firms conducted surface and subsurface investigations at the landfill. Monitoring wells were installed around the perimeter of the landfill, and groundwater and surface water/leachate samples were collected. Analytical results indicated that the landfill leachate was present in groundwater flowing radially from the landfill, nearby private wells have documented contamination, and several leachate plumes were possibly contaminating surface water bodies. Since the landfill was capped in 1990, the concentrations of contaminants have declined; the private wells continue to be contaminated.

The soils surrounding the landfill are predominantly silty and fine-sandy loams, very stony, and with shallow slopes. The surficial materials underlying the landfill are glacial till, poorly drained and bouldery. Bedrock in the vicinity of the landfill is mapped as Cambridge-age Winooski Dolomite, a buff-weathered, pink, buff, and gray dolomite. The Winooski Dolomite formation outcrops just to the west of the landfill. This rock is highly fractured. Groundwater is perched on the unweathered till making the till formation a major controlling factor in the shallow groundwater flow direction. Groundwater flows regionally from the typographically high mountains to the east to Otter Creek River Basin to the west. The perched shallow aquifer underlying the landfill flows radially north, west, and south, indicating a groundwater divide in the middle of the landfill. The approximate depth to bedrock from the natural grade ranges from 10 to 20 feet. The depth to groundwater measured in the onsite monitoring wells ranges from 5 to 18 feet. The depth to bedrock from the top of the capped landfill is approximately 75 feet.

The contaminants detected in the private wells located to the west of the landfill have not been detected in the onsite monitoring wells. The contaminants detected in the private wells have been dense non-aqueous phase liquids (DNAPLs), volatile organic compounds that are denser than water. It is possible that the DNAPLs potentially originating from the landfill have sunk in the shallow water table and eluded the onsite monitoring wells, possibly traveling in the highly fractured bedrock, or on the bedrock surface in trenches to the west, although, reportedly, bedrock dips to the south and southeast.

There are private, public community, and non-public community drinking water sources within 4 miles of the landfill. The majority of the population of Rutland is served by the Rutland DPW, Water Department. The DPW maintains an off-line anthropogenic reservoir located 1.9 miles to the northeast of the landfill (not in the surface water pathway). There are eight public

community water systems within 4 miles of the landfill, serving an estimated 1,445 people. An estimated 3,881 people are served by private and public groundwater sources located within 4 miles of the landfill.

Surface runoff drains from the south of the landfill into a wetland area abutting Moon Brook and from the north of the landfill into an unnamed tributary of Tenney Brook. Tenney Brook flows into East Creek. Both East Creek and Moon Brook flow into Otter Creek. Samples collected from Moon Brook indicate that the leachate seeps originating from the south side of the landfill have adversely affected the quality of the brook. Since the landfill was capped, concentrations have decreased. Short sections of wetlands border Tenney Brook and Moon Brook; Moon Brook is impounded downstream of the landfill, forming a pond that is stocked with fish.

The Rutland County Solid Waste District employs 6 people in various capacities at the landfill. Two schools abut the landfill to the southwest. A total of 1,725 students attend these two schools. Approximately 800 people live within 1-mile travel distance of the landfill. The number of people living, in addition to, the number of people attending school within 4 miles of the landfill is approximately 25,000.

REFERENCES

[1] CDM (CDM Federal Programs Corporation). 1994. Field Logbooks for Onsite Reconnaissance at Rutland City Landfill, TDD No. 9305-24-ACX. October 6.

[2] Deane, F.D. (Dufresne-Henry, Inc.). 1994. Letter and Attachments to J. Surwilo (VTDEC, Solid Waste Management Division), RE: Rutland City Landfill, Post Closure Water Quality Monitoring. August 5.

[3] Dufresne-Henry, Inc. 1990. Revised Landfill Closure Plan. Completed May. Approved August.

[4] Fetter, C.W. 1993. *Contaminant Hydrology*. pg. 324. Figure 7.13.

[5] Frost, R. (Frost Associates). Undated. Letter to M. Rooney (CDM), RE: CENTRACTS Report on Population, Households, and Private Water Wells in Each Block Group for Rutland City Landfill. TDD No. 9305-24-ACX.

[6] GEI Consultants, Inc. 1990. Final Data Summary Report - Rutland City Landfill. ANR Vermont Landfills Assessment Program. December 26.

[7] Hackbarth, J. (VTDEC, Solid Waste Management Section). 1986. Memorandum to B. Ahearn (Chief, Solid Waste Management Section) and T. Moye (Abandoned Site, Environmental Release Management Section), RE: Rutland City Hydrogeologic Study. August 14.

[8] Mackay, D., P. Roberts, J. Cherry. 1985. Transport of Organic Contaminants in Groundwater. *Envir. Sci. Technol.*, 19 (5).

[9] Marshall, E. (Vermont Agency of Natural Resources). 1994. Letter to C. Thomas (CDM), RE: Rutland City Landfill, Rutland, VT. TDD No. 9305-24-ACX. October 10.

[10] Perry, R.H., D. Green. 1984. *Perry's Chemical Engineers' Handbook*. McGraw-Hill, Inc. Sixth Edition.

[11] Shepard, D. (VTDEC, Hazardous Materials Management Division). 1988. Memorandum to J. Hackbarth (VTDEC, Solid Waste Management Section), RE: Wehran Rutland Landfill Hydrogeologic Report. January 25.

[12] State of Vermont Water Resources Board. 1994. Vermont Water Quality Standards. July 12.

[13] Surwilo, J. (VTDEC, Solid Waste Management Division). 1989. Letter to W. Conner, P.E. (city engineer, City of Rutland), RE: Disposal Approval. August 1.

[14] Surwilo, J. (VTDEC, Solid Waste Management Division). 1990. Letter to W. Conner, P.E. (city engineer, City of Rutland), RE: Disposal Approval. February 5.

[15] Surwilo, J. (VTDEC, Solid Waste Management Division). 1990. Letter to W. Conner, P.E. (city engineer, City of Rutland), RE: Disposal Approval. June 12.

[16] Surwilo, J. (VTDEC, Solid Waste Management Division). 1991. Letter to F. Atruli (A & H Realty), RE: Groundwater Sampling Results. February 8.

[17] Surwilo, J. (VTDEC, Solid Waste Management Division). 1991. Letter to R. Kussel (Midas Muffler), RE: Groundwater Sampling Results. February 15.

[18] Surwilo, J. (VTDEC, Solid Waste Management Division). 1991. Letter to T. Kusina (Private Well Owner), RE: Groundwater Sampling Results. February 15.

[19] Surwilo, J. (VTDEC, Solid Waste Management Division). 1991. Letter to Dunham Shoe Factory Outlet, RE: Groundwater Sampling Results. February 19.

[20] Surwilo, J. (VTDEC, Solid Waste Management Division). 1991. Letter to P. Kavouksorian (Mountain Traveller), RE: Groundwater Sampling Results. February 20.

[21] Thomas, C. (CDM). 1994. Record of Communication with W. Conner (City Engineer, City of Rutland), RE: Current Status. Rutland City Landfill, TDD No. 9305-24-ACX. August 10.

[22] Thomas, C. (CDM). 1994. Record of Communication with J. Surwilo (Solid Waste Management Division, VTDEC), RE: Current Status of Landfill. Rutland City Landfill, TDD No. 9305-24-ACX. August 18.

[23] Thomas, C. (CDM). 1994. Record of Communication with A. Shelvey (Assistant City Engineer, City of Rutland), RE: Rutland's Water Supply. Rutland City Landfill, TDD No. 9305-24-ACX. August 25.

[24] Thomas, C. (CDM). 1994. Record of Communication with D. Butterfield (VTDEC, Water Supply Division), RE: Groundwater Quality. Rutland City Landfill, TDD No. 9305-24-ACX. September 15.

[25] Thomas, C. (CDM). 1994. Record of Communication with D. Maxon (VTDEC, Water Quality Division), RE: Surface Water Qualities in Vermont. Rutland City Landfill, TDD No. 9305-24-ACX. September 15.

[26] Thomas, C. (CDM). 1994. Record of Communication with D. Maxon (VTDEC, Water Quality Division), RE: Flow Rates. Rutland City Landfill, TDD No. 9305-24-ACX. September 15.

[27] Thomas, C. (CDM). 1994. Record of Communication with J. Kavouksorian (Owner, Mountain Traveler), RE: Drinking Water. Rutland City Landfill, TDD No. 9305-24-ACX. October 13.

[28] Thomas, C. (CDM). 1994. Record of Communication with R. Kussel (Manager, Midas Muffler), RE: Drinking Water. Rutland City Landfill, TDD No. 9305-24-ACX. October 13.

[29] Thomas, C. (CDM). 1994. Record of Communication with W. Mangan (Manager, Walsh Electric), RE: Use of Private Well. Rutland City Landfill, TDD No. 9305-24-ACX. October 14.

[30] Thomas, C. (CDM). 1994. Record of Communication with Ms. Crowley (Administrator, Stafford Technical Center), RE: Student Enrollment. Rutland City Landfill, TDD No. 9305-24-ACX. October 17.

[31] Thomas, C. (CDM). 1994. Record of Communication with D. Deane (Dufresne-Henry), RE: Sampling Locations. Rutland City Landfill, TDD No. 9305-24-ACX. November 8.

[32] Thomas, C. (CDM). 1995. Record of Communication with D. Callum (Vermont Department of Fish and Wildlife), RE: Fishing in Moon Brook. Rutland City Landfill, TDD No. 9305-24-ACX. January 12.

[33] USEPA (U.S. Environmental Protection Agency). 1993. Resource Conservation and Recovery Act Information System. Printout dated November 22.

[34] USEPA, Office of Water. 1994. Drinking water Regulations and Health Advisories. May.

[35] USEPA. 1994. Comprehensive Environmental Response, Compensation, and Liability Act Information System. Printout dated July 21.

[36] USGS (U.S. Geological Survey). 1944. Proctor, VT Quadrangle. 7.5 x 15 Minute Series (Topographic) Map.

[37] USGS. 1961. Rutland, VT Quadrangle. 7.5 x 15 Minute Series (Topographical) Map. Photorevised 1988.

[38] USGS. 1961. Chittenden, VT Quadrangle. 7.5 x 15 Minute Series (Topographic) Map. Photorevised 1988.

[39] USGS. 1964. West Rutland, VT Quadrangle. 7.5 x 15 Minute Series (Topographic) Map. Photorevised 1972.

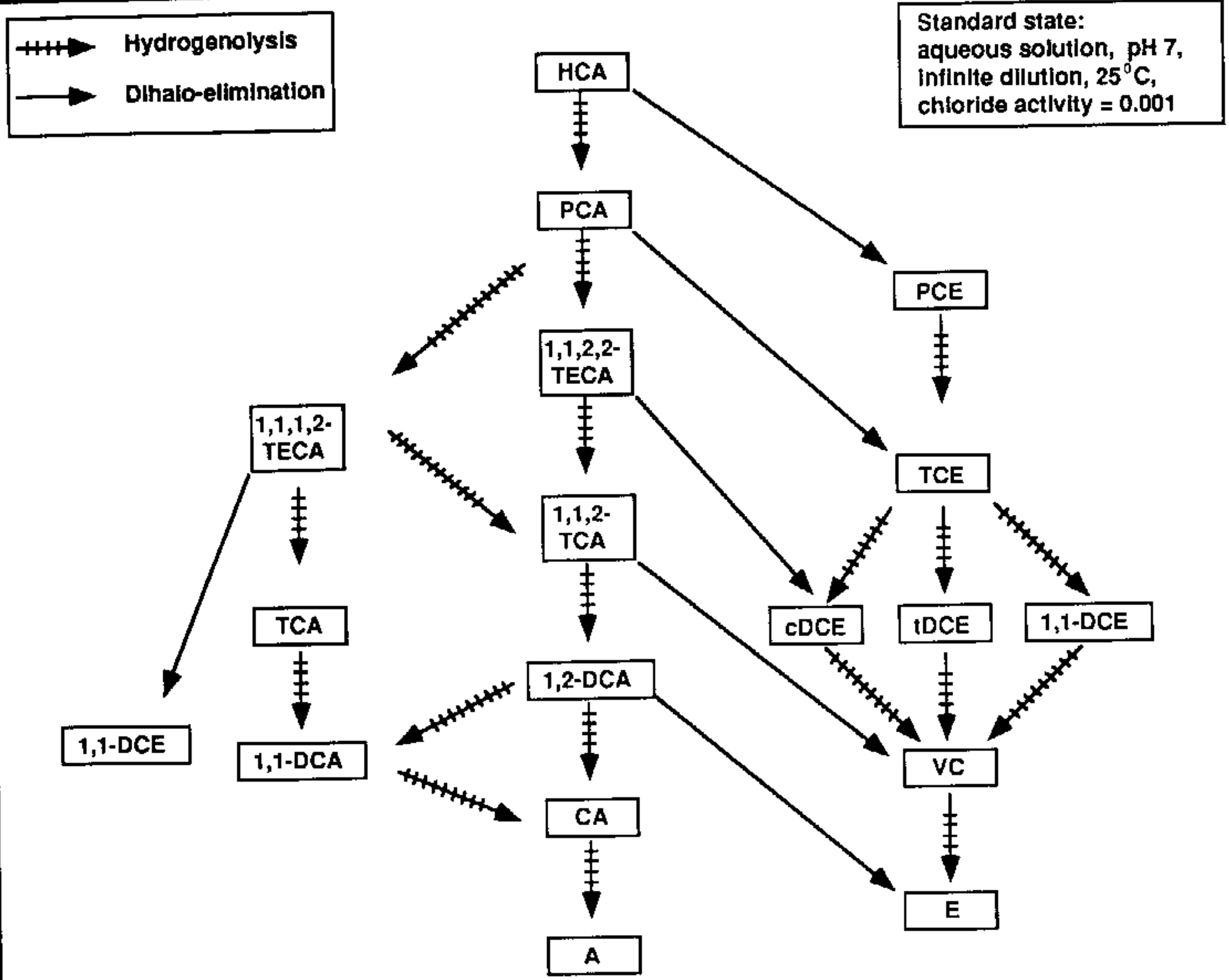
[40] USGS. 1986. National Water Summary 1986 -- Groundwater Quality: Vermont. USGS Water-Supply Paper 2325. Pages 501 - 508.

ATTACHMENT B

Anaerobic Degradation Pathways as Adapted from

Fetter, C.W. *Contaminant Hydrology*. p. 324. Figure 7.13.

1993.



1,1-DCE	=	1,1-dichloroethene	CA	=	chloroethane
1,1,1,2-TECA	=	1,1,1,2-tetrachloroethane	A	=	ethane
TCA	=	trichloroethane	PCE	=	perchloroethene
1,1-DCA	=	1,1-dichloroethane	TCE	=	trichloroethene
HCA	=	hexachloroethane	cDCE	=	*cis*-dichloroethene
PCA	=	pentachloroethane	tDCE	=	*trans*-dichloroethene
1,1,2,2-TECA	=	1,1,2,2-tetrachloroethane	1,1-DCE	=	1,1-dichloroethene
1,1,2-TCA	=	1,1,2-trichchloroethane	VC	=	vinyl chloride
1,2-DCA	=	1,2-dichloroethane	E	=	ethylene

ANAEROBIC BIODEGRADATION PATHWAYS

Source: Fetter, C.W. 1993. Contaminant Hydrology. pg. 324. Figure 7.13.

CDM FEDERAL PROGRAMS CORPORATION
a subsidiary of Camp Dresser & McKee Inc.

[41] USGS. 1994. Water Resources Data -- New Hampshire and Vermont -- Water Year 1993.

[42] Vermont Fish and Wildlife Department. 1994. Vermont Digest of Fish and Wildlife Laws -- 1994.

[43] VTDEC. 1989. Site Inspection Report -- Rutland Landfill. January.

[44] VTDEC. 1988. State of Vermont River Basins with Surface Water Bodies. April 1.

[45] VTDEC, Water Supply Division. 1994. Water Supply System Inventory (database).

[46] VTDEC, Water Supply Division. Undated. Basic Well Data from Rutland and Mendon, Vermont.

[47] Wagner and Associates, Inc. 1986. Rutland Sanitary Landfill Hydrogeologic Study. Revised Report. April 7.

[48] Wehran Engineering. 1988. Hydrogeologic Study -- Rutland Sanitary Landfill. Final Report. January 11.

[49] Whitman & Howard, Inc. 1975. Operational Report with Plans, Rutland Solid Waste Disposal Site. December.

ATTACHMENT A

Summary of Groundwater and Surface Water Sample Analytical Results of Semiannual Monitoring for

Rutland City Landfill

Dufresne-Henry

1994

RUTLAND CITY LANDFILL – WATER QUALITY MONITORING

File EXSUM

Summary of October 1992 Water Quality Results Exceeding Groundwater Rule Preventative Action Limits

PARAMETER	P.A.L.	LOCATION										
		OW1	MW1	MW2	MW3	MW4	MW5A	MW6	MW7	GS6	GS8	MW102
Chloride	250 mg/l	**434**	3	19	Not Sampled	**382**	**284**	2	127	60	146	153
Dissolved Iron	0.3 mg/l	<0.03	0.09	**7.1**	Not Sampled	**20**	**21**	**7.7**	**0.94**	0.25	**0.6**	**42.3**
Dissolved Managanese	0.05 mg/l	**0.37**	**0.34**	**1.02**	Not Sampled	**0.51**	**0.81**	**2.7**	**1.6**	0.03	**0.32**	**1.6**
Benzene	5 ug/l	<1	<1	<1	Not Sampled	**5**	**6**	<1	<1	<1	<1	<1

Summary of May 1993 Water Quality Results Exceeding Groundwater Rule Preventative Action Limits

PARAMETER	P.A.L.	LOCATION										
		OW1	MW1	MW2	MW3	MW4	MW5A	MW6	MW7	GS6	GS8	MW102
Chloride	250 mg/l	**480**	2	42	60	**355**	38	4	125	23	**923**	172
Dissolved Iron	0.3 mg/l	**319**	**297**	**16.4**	**15.6**	**17.1**	**10.3**	<0.03	**0.91**	**0.31**	0.29	**80.7**
Dissolved Managanese	0.05 mg/l	**28.9**	**24.5**	**0.73**	**4.6**	**0.72**	**1.85**	<0.02	**2.18**	0.04	**0.53**	**4.3**
Benzene	5 ug/l	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	1

Summary of October 1993 Water Quality Results Exceeding Groundwater Rule Preventative Action Limits

PARAMETER	P.A.L.	LOCATION										
		OW1	MW1	MW2	MW3	MW4	MW5A	MW6	MW7	GS6	GS8	MW102
Chloride	250 mg/l	**287**	<1	29	Not Sampled	68	208	154	2	59	151	115
Dissolved Iron	0.3 mg/l	<0.03	<0.03	**7.9**	Not Sampled	0.2	**14.7**	**18.8**	**8.1**	**0.58**	0.77	41
Dissolved Managanese	0.05 mg/l	**0.61**	<0.02	**0.96**	Not Sampled	**0.91**	**0.82**	**0.86**	**2.48**	**0.15**	**0.46**	2.4
Benzene	5 ug/l	<1	<1	<1	Not Sampled	4	4	<1	<1	<1	<1	1

Summary of May 1994 Water Quality Results Exceeding Groundwater Rule Preventative Action Limits

PARAMETER	P.A.L.	LOCATION										
		OW1	MW1	MW2	MW3	MW4	MW5A	MW6	MW7	GS6	GS8	MW102
Chloride	250 mg/l	**286**	<1	26	23	217	162	<1	87	28	225	103
Dissolved Iron	0.3 mg/l	<0.03	0.03	**15.2**	**15.2**	**21.3**	**9.9**	**0.04**	0.2	**0.14**	**0.52**	75.5
Dissolved Managanese	0.05 mg/l	**0.35**	<0.02	**0.63**	**5.1**	**1.03**	**0.28**	**0.07**	**2.2**	**0.08**	**0.3**	2.5
Benzene	5 ug/l	<1	<1	1	<1	**4**	**18**	<1	<1	<1	<1	<1

Note: Bold values exceed P.A.L.

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

OW1

METALS AND INDICATORS

DATE OF SAMPLE	6/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION														
pH	7.3	7.6	7.75	7	7.6	N.S.	N.A.	N.F	7.87	7.69	7.32	6.86	7.4	7.03	6.92
Conductivity (umhos/cm)	N.A.	700	960	600	810	N.S.	1460	N.F	2750	1139	1536	1182	1990	1150	1790
Temperature (C)	N.A.	N.A.	N.A.	N.A.	N.A.	N.S.	9.7	N.F.	12.1	12.3	9.2	5.9	7.9	9.9	12.1
COD (mg/l)	54.6	4.6	70.3	381.68	123	N.S.	64	N.F.	27.2	44.5	14.4	41.0	10.8	<20	<20
Chloride (mg/l)	219	305	228	244	312	N.S.	365	N.F	829	272	422	454	480	287	286
Turbidity (NTU)	N.A.	N.A.	N.A.	N.A.	N.A.	N.S.	N.A.	N.F	470	5200	720	3000	1580	980	2500
Total Iron (mg/l)	54.7	0.13	28.1	248.6	146.9	N.S.	N.A.	N.F.	19.8	0.42	24.2	192	525	195	140
Dissolved Iron (mg/l)	0.01	<.05	<.02	0.074	6.41	N.S.	<.01	N.F.	<.02	<.05	0.09	<.03	319	<.03	<0.03
Dissolved Cadmium (mg/l)	<.005	<.005	<.005	<.005	<.005	N.S.	0.003	N.F	<.0014	<.0005	0.0013	<.0005	<.0005	<.0005	<0.0005
Dissolved Chromium (mg/l)	<.005	<.02	<.02	<.03	<.005	N.S.	<.01	N.F	0.015	<.005	<.005	<.005	<.005	<.005	<0.005
Dissolved Copper (mg/l)	<.005	<.01	0.01	<.05	<.01	N.S.	<.01	N.F.	0.06	<.02	<.02	<.03	<.03	<.03	<0.03
Dissolved Lead (mg/l)	<.05	<.02	0.001	<.001	0.0087	N.S.	<.01	N.F.	0.036	<.005	<.005	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	3.1	0.64	1.44	9.07	5.07	N.S.	N.A.	N.F	4.43	6.06	5.88	8.0	28.4	7.1	12.8
Dissolved Manganese (mg/l)	1.61	0.59	0.45	0.462	1.27	N.S.	0.248	N.F	0.51	0.32	0.19	0.37	28.9	0.61	0.12
Dissolved Nickel (mg/l)	<.01	<.01	0.02	<.05	<.025	N.S.	<.01	N.F.	0.09	<.05	<.05	<.05	<0.05	<.05	<0.05
Dissolved Zinc (mg/l)	0.121	0.045	0.062	0.138	0.108	N.S.	<.04	N.F.	0.52	0.015	0.044	0.038	0.013	0.012	<0.005
Total Organic Halides (ug/l)	110	24	20	N.S.	<10	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

FILE OW1I

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results

All results are expressed in ug/l

OW1

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	<10	<10	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<10	<10	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<5	<5	<10	<5	<5	N.S.	<2	2	1	<1	<1	<1	1	1	1
Trans-1,2-Dichloroethene	<5	<5	2	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethene	N.A.	N.A.	N.A.	N.A.	N.A.										
1,1,1-Trichloroethane	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<5	<5	1	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Benzene	<5	<5	1	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Toluene	<5	<5	2	<5	6	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<5	<5	2	<5	<5	N.S.	<2	<2	<1	<1	2	<1	<1	<1	<1
Total Xylenes	<5	<5	N.A.	N.A.	N.A.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	<5	<5	1	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Acetone	<10	4	N.A.	N.A.	N.A.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	<10	<10	N.A.	N.A.	N.A.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	<10	<10	N.A.	N.A.	N.A.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	<10	<10	N.A.	N.A.	N.A.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	<5	<5	1	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.A.	N.A.	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.A.	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<5	<5	<5	<5	<5	N.S.	<2	<2	<1	<1	1	<1	<1	<1	<1
Chloromethane	<10	<10	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1

FILE OW1V

MW1

Summary of Water Quality Sampling Results
Units as Noted

METALS AND INDICATORS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
pH	6.9	7.25	6.65	6.9	6.9	N.S.	N.A.	N.F	7.72	7.75	7.82	7.60	8.07	7.84	7.42
Conductivity (umhos/cm)	N.A.	354	750	750	485	N.S.	0.36	N.F	358	236	214	196	279	211	330
Temperature (C)	N.A.	N.A.	N.A.	N.A.	N.A.	N.S.	10.25	N.F.	12.6	10.9	10.1	8.5	10.5	9.4	11.8
COD (mg/l)	280	14.6	92.1	1717.5	588	N.S.	28	N.F.	26.7	29.5	43.2	24.4	<2.0	<20	<20
Chloride (mg/l)	64.5	35.5	43.3	43.1	50.2	N.S.	3.6	N.F	4	2	2	3	2	<1	<1
Turbidity (NTU)	N.A.	N.A.	N.A.	N.A.	N.A.	N.S.	N.A.	N.F	5400	8800	5000	1600	7500	5	160
Total Iron (mg/l)	38	26.1	45.6	51.29	40.02	N.S.	N.A.	N.F.	70.2	3.69	57.8	85	418	0	6
Dissolved Iron (mg/l)	22.6	25.42	45.9	45.92	38.25	N.S.	0.038	N.F.	0.48	0.13	<.02	0.09	297	<.03	0.03
Dissolved Cadmium (mg/l)	0.004	<.005	<.005	<.005	<.005	N.S.	<.002	N.F	<.001	<.0005	<.0005	<.0005	<.0005	<.0005	<0.0005
Dissolved Chromium (mg/l)	0.044	0.056	<.02	<.03	<.005	N.S.	<.01	N.F	0.035	<.005	<.005	<.005	<.005	<.005	<0.005
Dissolved Copper (mg/l)	<.005	<.01	<.01	<.05	<.01	N.S.	<.01	N.F.	0.18	<.02	<.02	<.03	<.03	<.03	<0.03
Dissolved Lead (mg/l)	<.005	<.002	<1	<1	0.0014	N.S.	<.01	N.F.	0.11	<.005	<.005	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	17.9	8.6	12.6	13.59	10.63	N.S.	N.A.	N.F	11.9	0.32	8.27	4.0	24	<.02	0.3
Dissolved Manganese (mg/l)	17.5	8.4	11.39	12.77	10.32	N.S.	0.265	N.F	0.43	0.37	0.26	0.34	24.5	<.02	<0.02
Dissolved Nickel (mg/l)	<.01	<.01	<.02	<.05	<.025	N.S.	<2	N.F.	0.18	<.05	<.05	<.05	<.05	<.05	<0.05
Dissolved Zinc (mg/l)	0.056	0.115	0.09	0.134	0.071	N.S.	<.04	N.F.	0.543	0.017	0.014	0.034	<.005	<.005	<0.005
Total Organic Halides (ug/l)	61	29	29	N.S.	19	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
All results are expressed in ug/l

MW1

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	<10	<10	<10	<10	<10	N.S.	<10	N.S.	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<10	<10	<10	<10	<10	N.S.	<10	N.S.	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<5	<5	<10	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<5	<5	<10	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-Dichloroethene	<5	<5	<5	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethene	N.A.	N.A.	N.A.	N.A.	N.A.										
1,1,1-Trichloroethane	<5	<5	<10	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<5	<5	<5	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Benzene	<5	<5	1	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<5	<5	<10	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Toluene	29	<5	<5	<5	7	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<5	<5	<5	1	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Total Xylenes	<5	<5	N.A.	N.A.	N.A.	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<5	<5	<10	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	<5	2	2	2	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Acetone	13	<10	N.A.	N.A.	N.A.	N.S.	<50	N.S.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	<10	<10	N.A.	N.A.	N.A.	N.S.	<50	N.S.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	<10	<10	N.A.	N.A.	N.A.	N.S.	<20	N.S.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	<10	<10	N.A.	N.A.	N.A.	N.S.	<20	N.S.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	<5	<5	1	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.A.	N.A.	<10	<10	3	N.S.	<10	N.S.	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.A.	<5	<10	<5	<5	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<10	<10	<10	<10	<10	N.S.	<10	N.S.	<1	<1	<1	<1	<1	<1	<1
1,1,2-2-Tetrachloroethane	<5	<5	<5	<5	2	N.S.	<2	N.S.	<1	<1	<1	<1	<1	<1	<1

FILE MW1V

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as noted

MW2

METALS AND INDICATORS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION														
pH	6.7	7.1	6.65	6.9	7.6	N.S.	N.A.	N.F	6.85	7.07	6.89	6.01	7.42	6.85	6.76
Conductivity (umhos/cm)	N.A.	580	990	700	810	N.S.	825	N.F	1023	826	799	700	691	875	950
Temperature (C)	N.A.	N.A.	N.A.	N.A.	N.A.	N.S.	9.4	N.F.	12.3	12.1	8.9	8.5	9.6	9.8	12.9
COD (mg/l)	3600	64.8	120.1	274.8	123	N.S.	43	28	34	49.7	32.6	53.1	25.8	23	33
Chloride (mg/l)	17.5	20	22.2	17.9	312	N.S.	14.4	26.7	40	30	32	19	42	29	26
Turbidity (NTU)	N.A.	N.A.	N.A.	N.A.	N.A.	N.S.	N.A.	N.F	180	260	280	170	140	170	350
Total Iron (mg/l)	51.5	54.06	80.7	82.18	146.9	N.S.	N.A.	N.A.	45.1	33.9	44.7	25.8	47.5	34.7	55
Dissolved Iron (mg/l)	34.4	53.48	65.2	81.69	6.41	N.S.	5.66	33.9	33.2	15.4	33.6	7.1	16.4	7.9	15.2
Dissolved Cadmium (mg/l)	0.006	<.005	<.005	<.005	<.005	N.S.	<.002	<.002	<.001	<.0005	<.0005	<.0005	<.0005	<.0005	<0.0005
Dissolved Chromium (mg/l)	0.112	0.127	0.02	<.03	<.005	N.S.	<.01	<.01	<.005	<.005	<.005	<.005	<.005	<.005	<0.005
Dissolved Copper (mg/l)	<.005	<.01	<.01	<.05	<.01	N.S.	0.014	<.01	<.02	<.02	<.02	<.03	<.03	<.03	<0.03
Dissolved Lead (mg/l)	<.05	<.02	0.0015	<.001	0.0087	N.S.	<.01	<.01	<.005	<.005	<.005	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	15.6	9.53	8.77	4.93	5.07	N.S.	N.A.	N.A.	1.91	1.22	1.2	1.11	0.93	1.9	0.71
Dissolved Manganese (mg/l)	14.6	9.47	7.44	4.4	1.27	N.S.	1.32	2.11	1.48	1.1	1.04	1.02	0.73	0.96	0.63
Dissolved Nickel (mg/l)	0.022	<.01	<.02	<.05	<.025	N.S.	<.01	<.01	<.05	<.05	<.05	<.05	<0.05	<.05	<0.05
Dissolved Zinc (mg/l)	0.049	0.086	0.082	0.156	0.108	N.S.	<.04	<.04	0.098	0.025	0.031	0.034	0.012	<.007	0.009
Total Organic Halides (ug/l)	70	61	48	N.S.	<10	N.S.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
All results are expressed in ug/l

MW2

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	6/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	<10	<10	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<10	<10	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-Dichloroethene	<5	<5	<5	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethene	N.A.	N.A.	N.A.	N.A.	N.A.										
1,1,1-Trichloroethane	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Benzene	<5	<5	2	<5	<5	N.S.	4	<2	<1	<1	<1	<1	2	<1	1
Tetrachloroethene	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Toluene	<5	51	<5	<5	5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<5	3	2	1	9	N.S.	<2	<2	3	<1	2	<1	<1	<1	2
Total Xylenes	<5	<5	N.A.	N.A.	N.A.	N.S.	<2	<2	<1	<1	<1	<1	7	<1	<1
1,2-Dichloropropane	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	<5	<5	1	2	2	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Acetone	960	<10	N.A.	N.A.	N.A.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	270	<10	N.A.	N.A.	N.A.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	<10	<10	N.A.	N.A.	N.A.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	<10	<10	N.A.	N.A.	N.A.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.A.	N.A.	<10	<10	3	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.A.	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<10	<10	<10	<10	9	N.S.	<10	<10	<1	2	2	<1	<1	<1	<1
1,1,2-2-Tetrachloroethane	<5	<5	<5	<5	1	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Chlorobenzene	<5	<5	<5	<5	<5	N.S.	<2	<2	<1	<1	1	<1	1	<1	1

FILE MW2V

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

MW3

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION															
pH	N.S.	6.6	6.95	6.65	6.88	6.8	N.S.	N.S.	N.F	6.86	6.55	7	N.S.	6.68	N.S.	6.7
Conductivity (umhos/cm)	N.S.	1000	321	800	700	480	N.S.	N.S.	N.F	742	1510	908	N.S.	835	N.S.	700
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	14.7	14.1	12	N.S.	10.5	N.S.	12.4
COD (mg/l)	N.S.	110.3	60.8	79.5	992.37	106	N.S.	N.S.	55	25.5	27.4	30.7	N.S.	28.2	N.S.	<20
Chloride (mg/l)	N.S.	4.82	1	2.3	0.53	0.51	N.S.	N.S.	0.6	1	479	90	N.S.	60	N.S.	23
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	620	280	220	N.S.	170	N.S.	360
Total Iron (mg/l)	N.S.	54.03	55.04	73.6	107.2	82.23	N.S.	N.S.	N.F.	106	N.A.	81.8	N.S.	202	N.S.	161
Dissolved Iron (mg/l)	N.S.	41.8	53.77	59.3	53.8	30.58	N.S.	N.S.	10	14.8	1.66	4.71	N.S.	15.6	N.S.	15.2
Dissolved Cadmium (mg/l)	N.S.	<.005	<.005	<.005	<.005	<.005	N.S.	N.S.	<.002	<.0010	0.0006	0.0015	N.S.	<.0005	N.S.	<0.0005
Dissolved Chromium (mg/l)	N.S.	0.21	0.141	<.02	<.03	<.005	N.S.	N.S.	<.01	<.005	<.005	<.005	N.S.	<.005	N.S.	<0.005
Dissolved Copper (mg/l)	N.S.	<.05	<.01	0.01	<.05	<.01	N.S.	N.S.	<.01	<.02	<.02	<.02	N.S.	<0.03	N.S.	<0.03
Dissolved Lead (ug/l)	N.S.	<1	<.02	1.2	<1	1.2	N.S.	N.S.	<.01	<.005	<.005	<.005	N.S.	<0.003	N.S.	<0.003
Total Manganese (mg/l)	N.S.	9.44	4.03	4.93	5.16	4.23	N.S.	N.S.	N.S.	4.85	N.S.	2.55	N.S.	5.8	N.S.	6.2
Dissolved Manganese (mg/l)	N.S.	8.91	3.97	4.5	4.21	3.93	N.S.	N.S.	4.82	4.01	7.22	2.15	N.S.	4.6	N.S.	5.1
Dissolved Nickel (mg/l)	N.S.	<.05	<.01	0.02	<.05	<.025	N.S.	N.S.	<.01	<.05	<.05	<.05	N.S.	<0.05	N.S.	<0.05
Dissolved Zinc (mg/l)	N.S.	0.07	0.292	0.301	0.1	0.01	N.S.	N.S.	<.04	0.214	0.04	0.044	N.S.	0.007	N.S.	<0.005
Total Organic Halides (ug/l)	N.S.	N.S.	18	<10	N.S.	17	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

MW3

Summary of Water Quality Sampling Results
All results are expressed in ug/l

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	N.S.	<10	<10	<10	<10	N.S.	N.S.	<10	<1	<1	<1	N.S.	<1	N.S.	<1
Chloroethane	N.S.	<10	<10	<10	<10	N.S.	N.S.	<10	<1	<1	<1	N.S.	<1	N.S.	<1
1,1-Dichloroethene	N.S.	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
1,1-Dichloroethane	N.S.	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Trans-1,2-Dichloroethene	N.S.	<5	<5	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Cis-1,2-Dichloroethene		N.A.	N.A.	N.A.	N.A.										
1,1,1-Trichloroethane	N.S.	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Trichloroethene	N.S.	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Benzene	N.S.	<5	1	<5	10	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Tetrachloroethene	N.S.	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Toluene	N.S.	<5	<5	<5	7	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Ethylbenzene	N.S.	<5	<5	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Total Xylenes	N.S.	<5	N.A.	N.A.	N.A.	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
1,2-Dichloropropane	N.S.	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Methylene Chloride	N.S.	2	2	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Acetone	N.S.	<10	N.A.	N.A.	N.A.	N.S.	N.S.	<50	N.A.	N.A.	N.A.	N.S.	N.A.	N.S.	N.A.
Methyl Ethyl Ketone	N.S.	<10	N.A.	N.A.	N.A.	N.S.	N.S.	<50	N.A.	N.A.	N.A.	N.S.	N.A.	N.S.	N.A.
2-Hexanone	N.S.	<10	N.A.	N.A.	N.A.	N.S.	N.S.	<20	N.A.	N.A.	N.A.	N.S.	N.A.	N.S.	N.A.
4-Methyl-2-Pentanone	N.S.	<10	N.A.	N.A.	N.A.	N.S.	N.S.	<20	N.A.	N.A.	N.A.	N.S.	N.A.	N.S.	N.A.
Chloroform	N.S.	<5	1	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Trichlorofluoromethane	N.S.	N.A.	<10	<10	<10	N.S.	N.S.	<10	<1	<1	<1	N.S.	<1	N.S.	<1
Trans-1,3-Dichloropropene	N.S.	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1
Chloromethane	N.S.	<10	<10	<10	<10	N.S.	N.S.	<10	<1	<1	<1	N.S.	<1	N.S.	<1
1,1,2-2-Tetrachloroethane	N.S.	<5	<5	<5	<5	N.S.	N.S.	<2	<1	<1	<1	N.S.	<1	N.S.	<1

FILE MW3V

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

MW4

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION															
pH	7	7	7.1	6.9	7	7.1	N.S.	N.S.	N.F	7.06	7.31	7.17	6.68	7.05	7.1	6.95
Conductivity (umhos/cm)	N.S.	4000	2400	430	2900	2830	N.S.	N.S.	N.F	3890	2850	3500	4010	2450	1060	3000
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	12.5	13.4	12.9	8.3	11.8	11.1	18
COD (mg/l)	680	224.2	248.8	566.1	549.6	749	N.S.	N.S.	209	565	228	246	378	134	31	128
Chloride (mg/l)	502.3	481.8	500	538	563	587	N.S.	N.S.	405	391	327	402	382	355	88	217
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	210	210	280	240	200	105	320
Total Iron (mg/l)	28.2	31.29	33.24	56.7	31.41	26.38	N.S.	N.S.	N.F.	19.1	38.8	45.1	34.5	22.9	42.9	32.8
Dissolved Iron (mg/l)	19.3	24.15	32.95	34.3	27.07	39.09	N.S.	N.S.	2.86	15	2.79	17	20.0	17.1	0.2	21.3
Dissolved Cadmium (mg/l)	0.004	<.005	<.005	<.005	0.007	<.005	N.S.	N.S.	<.002	<.0010	<.0005	0.001	<.0005	<.0005	<.0005	<0.0005
Dissolved Chromium (mg/l)	<.01	0.197	0.082	<.02	<.03	<.005	N.S.	N.S.	<.01	0.006	0.01	<.005	<.005	<.005	<.005	<0.005
Dissolved Copper (mg/l)	.005	<.05	<.01	<.01	<.05	<.01	N.S.	N.S.	0.018	<.02	<.02	<.02	<.03	<.03	<.03	<0.03
Dissolved Lead (ug/l)	<50	1.86	<.02	1.6	3	7.8	N.S.	N.S.	<.01	<.005	<.005	<.005	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	1.47	0.86	0.96	1.16	0.856	0.867	N.S.	N.S.	N.S.	0.74	0.89	0.78	0.52	0.71	2.1	1.02
Dissolved Manganese (mg/l)	1.44	0.75	0.86	0.85	0.741	0.861	N.S.	N.S.	0.533	0.68	1.22	0.66	0.51	0.72	0.91	1.03
Dissolved Nickel (mg/l)	0.038	<.05	0.04	0.06	0.05	0.071	N.S.	N.S.	0.048	0.08	0.06	<.05	<.05	<0.05	<.05	<0.05
Dissolved Zinc (mg/l)	0.026	<.003	0.017	0.049	0.039	0.026	N.S.	N.S.	<.04	0.035	0.02	0.065	0.048	0.014	0.024	0.005
Total Organic Halides (ug/l)	N.A.	N.A.	400	380	N.A.	167	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

MW4

Summary of Water Quality Sampling Results
All results are expressed in ug/l

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	<10	<10	<10	<10	<10	N.S.	N.S.	<10	<1	<1	<1	7	<1	<1	<1
Chloroethane	<10	<10	5	<10	<10	N.S.	N.S.	<10	1	2	1	2	1	2	2
1,1-Dichloroethene	<5	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	<1	<1	<1	1
1,1-Dichloroethane	<5	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-Dichloroethene	<5	<5	2	<5	<5	N.S.	N.S.	<2	<1	2	<1	<1	1	2	<1
Cis-1,2-Dichloroethene	N.A.	N.A.	N.A.	N.A.	N.A.										
1,1,1-Trichloroethane	<5	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<5	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Benzene	<5	<5	1	4	6	N.S.	N.S.	6	<1	18	4	5	<1	4	4
Tetrachloroethene	<5	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Toluene	<5	<5	2	<5	6	N.S.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<5	<5	2	<5	<5	N.S.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Total Xylenes	7	<5	N.A.	N.A.	N.A.	N.S.	N.S.	<2	<1	<1	1	2	<1	1	2
1,2-Dichloropropane	<5	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	1	<1	<1	<1	<1
Methylene Chloride	<5	<5	1	<5	18	N.S.	N.S.	<2	<1	<1	<1	2	<1	<1	<1
Acetone	<10	<10	N.A.	N.A.	N.A.	N.S.	N.S.	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	<10	<10	N.A.	N.A.	N.A.	N.S.	N.S.	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	<10	<10	N.A.	N.A.	N.A.	N.S.	N.S.	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	<10	<10	N.A.	N.A.	N.A.	N.S.	N.S.	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	<5	<5	1	<5	<5	N.S.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.A.	N.A.	<10	<10	2	N.S.	N.S.	<10	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.A.	<5	<10	<5	<5	N.S.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<10	<10	<10	<10	<10	N.S.	N.S.	<10	33	26	23	28	<1	10	<1
1,4-Dichlorobenzene	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<1	2	1

FILE MW4V

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

MW5 OR MW5A

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	11/87 dup.	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION																
pH	6.4	6.8	6.5	6.4	6.8	6.5	N.S.	N.S.	N.S.	N.P	7.03	6.89	7.15	6.69	6.95	6.98	6.98
Conductivity (umhos/cm)	N.S.	8500	4250	11500	4600	5100	N.S.	N.S.	6880	N.P	1200	1202	1414	2770	855	2700	3100
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	10.6	N.F.	11.9	12.8	9.7	9.1	12.3	11.4	11.9
COD (mg/l)	9400	6028	12000	13726	8320.6	15485	N.S.	N.S.	1475	99	50.5	71.1	68.2	198	74.5	143	117
Chloride (mg/l)	950	1049.2	1080	1111.4	374	891	N.S.	N.S.	459	405	86	89	88	284	38	208	162
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	180	170	140	220	127	220	190
Total Iron (mg/l)	704	414.9	2249	985	301	1043	N.S.	N.S.	N.S.	N.F.	31.8	26.9	34.3	24.7	14.7	33.1	11.3
Dissolved Iron (mg/l)	660	324.7	944	926	112.1	1025	N.S.	N.S.	1510	12.6	8.89	22.7	28.1	21.0	10.3	14.7	9.9
Dissolved Cadmium (mg/l)	0.026	0.01	0.025	0.027	0.012	0.028	<.001	<.001	<.002	<.002	0.0012	<.0005	<.0005	<.0005	<.0005	<.0005	<0.0005
Dissolved Chromium (mg/l)	2.9	2.06	2.66	0.08	0.034	0.064	0.015	0.014	<.01	<.01	<.005	<.005	<.005	<.005	<.005	<.005	<0.005
Dissolved Copper (mg/l)	<.005	<.05	0.03	0.04	<.05	0.053	>.002	0.003	<.01	<.01	<.02	<.02	<.02	<.03	<.03	<.03	<0.03
Dissolved Lead (ug/l)	313	4.43	<.02	330	10	11.5	>5	>5	<.01	<.01	<.005	<.005	0.012	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	20	3.85	9.1	7.33	6.53	16.01	N.S.	N.S.	N.S.	N.S.	0.89	0.94	1.56	0.82	1.8	0.97	0.41
Dissolved Manganese (mg/l)	19.8	3.74	8.5	6.62	5.65	15.96	N.S.	N.S.	0.291	0.617	0.83	0.93	1.45	0.81	1.65	0.82	0.28
Dissolved Nickel (mg/l)	0.297	0.17	0.23	0.29	0.318	0.371	0.083	0.084	0.24	0.199	<.05	<.05	<.05	<.05	<0.05	<.05	<0.05
Dissolved Zinc (mg/l)	0.086	<.003	0.112	0.169	0.277	0.067	0.008	0.009	<.04	<.04	<.005	0.032	0.023	0.036	<0.005	0.011	<0.005
Total Organic Halides (ug/l)	N.A.	N.A.	2700	3400	N.A.	1680	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
All results are expressed in ug/l

MW5/MW5A

VOLATILE ORGANIC COMPOUNDS

SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	11/87 dup	7/90	12/90	5/91	10/91	5/92	5/92 dup	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION																
Vinyl Chloride	0	<10	<10	<10	<10	N.A.	N.A.	<100	<100	<1	<1	<1	<1	2	<1	2	<1
Chloroethane	<100	<10	<10	<10	<10	N.A.	N.A.	<100	<100	2	<1	1	1	2	<1	2	4
1,1-Dichloroethene	<50	<5	<10	<5	<5	<28	<28	<20	<20	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<50	<5	<10	<5	<5	<47	<47	<20	<20	16	<1	<1	<1	<1	<1	8	1
Trans-1,2-Dichloroethene	440	400	880	<5	<5												
						30	50	10	<20	<1	<1	<1	<1	<1	<1	1	<1
Cis-1,2-Dichloroethene	N.A.	N.A.	N.A.	N.A.	N.A.												
1,1,1-Trichloroethane	<50	<5	<10	<5	<5	<38	<38	<20	<20	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	75	130	<10	<5	<5	<19	<19	<20	<20	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<50	<5	690	<5	340	<44	<44	40	<20	<1	1	2	2	6	<1	4	18
Tetrachloroethene	<50	<5	<10	<5	<5	<41	<41	<20	<20	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	4200	8500	9800	4000	*******	4660	6550	3140	20	<1	<1	2	2	1	<1	1	25
Ethylbenzene	150	420	850	<5	880	200	220	220	<20	<1	11	12	2	76	<1	25	170
Total Xylenes	520	1700	N.A.	N.A.	N.A.	750	809	850	210	41	35	84	64	225	13	86	509
1,2-Dichloropropane	780	940	730	<5	<5	630	1000	80	<20	3	<1	2	2	4	<1	2	7
Methylene Chloride	380	<5	1700	<5	2200	<28	<28	<20	<20	<1	<1	<1	<1	15	<1	<1	1
Acetone	6600	<10	N.A.	N.A.	N.A.	N.A.	N.A.	2930	<500	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	*******	*******	N.A.	N.A.	N.A.	N.A.	N.A.	3020	<500	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	310	<10	N.A.	N.A.	N.A.	N.A.	N.A.	126	<200	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	6200	4500	N.A.	N.A.	N.A.	N.A.	N.A.	620	<200	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	<50	<5	1300	<5	<5	<16	<16	<20	<20	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.A.	N.A.	<10	<10	460	N.A.	N.A.	<100	<100	<1	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.A.	<5	<10	<5	3200	N.A.	N.A.	<20	<20	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<100	<10	<10	<10	<10	N.A.	N.A.	<100	<100	5	<1	3	2	<1	<1	4	<1
1, 4-Dichlorobenzene	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	4

FILE MW5V

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

MW6

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION															
pH	6.9	6.8	7.2	6.7	6.67	6.9	N.S.	N.S.	N.F	7.05	6.94	6.94	5.19	6.89	6.8	6.94
Conductivity (umhos/cm)	N.S.	600	332	930	350	450	N.S.	640	N.F	555	833	565	583	458	1870	610
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	10.5	N.F.	12.4	13.4	9.5	10.0	9.2	11.3	13.2
COD (mg/l)	54	69.2	29.9	320.8	135.6	61.1	N.S.	12	20	30.6	12.8	11.2	21.4	11.4	84	28
Chloride (mg/l)	5000	20.3	4	2.1	1.05	1.03	N.S.	3.7	1.8	2	1	5	2	4	154	<1
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	14	76	90	120	60	200	96
Total Iron (mg/l)	15.5	41.12	29.32	36.5	36.02	33.34	N.S.	N.S.	N.S.	5.11	11.7	18.7	18.5	18.4	31.3	15.2
Dissolved Iron (mg/l)	10.8	32.33	22.78	36.3	25.87	20.63	N.S.	0.088	1.63	1.4	6.79	<.02	7.7	<0.03	18.8	0.04
Disolved Cadmium (mg/l)	<.005	<.005	<.005	<.005	<.005	<.005	N.S.	<.002	<.002	<.0010	<.0005	0.0006	<.0005	0.0016	<.0005	<0.0005
Dissolved Chromium (mg/l)	<.005	0.15	0.048	<.02	<.03	<.005	N.S.	<.01	<.01	<.005	<.005	<.005	<.005	<.005	<.005	<0.005
Dissolved Copper (mg/l)	0.035	<.05	<.01	<.01	<.05	<.01	N.S.	<.01	<.01	<.02	<.02	<.02	<.03	<.03	<.03	<0.03
Dissolved Lead (ug/l)	<.05	4.75	<.02	<1	<1	<1	N.S.	<.01	<.01	<.005	<.005	<.005	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	11	11.09	6.37	6.11	6.19	6.49	N.S.	N.S.	N.S.	2.74	2.21	1.92	3.2	0.8	1.1	4.6
Dissolved Manganeae (mg/l)	10.9	10.59	6.13	5.95	5.3	5.54	N.S.	4.84	1.6	1.34	1.59	0.03	2.7	<0.02	0.86	0.07
Dissolved Nickel (mg/l)	<.01	<.05	<.01	<.02	<.05	<.025	N.S.	<.01	<.01	<.05	<.05	<.05	<.05	<0.05	<.05	<0.05
Dissolved Zinc (mg/l)	0.0196	0.1	0.039	0.119	0.07	0.05	N.S.	0.041	<.04	0.05	0.045	0.037	0.046	0.011	0.007	<0.005
Total Organic Halides (ug/l)	N.S.	N.S.	<10	30	N.S.	<10	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

MW6

Summary of Water Quality Sampling Results
All results are expressed in ug/l

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	**CONCENTRATION**														
Vinyl Chloride	<10	<10	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<10	<10	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-Dichloroethene	<5	<5	<5	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethene	N.A.	N.A.	N.A.	N.A.	N.A.										
1,1,1-Trichloroethane	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<5	<5	<5	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Benzene	<5	<5	<5	<5	4	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Toluene	<5	<5	<5	<5	6	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<5	<5	<5	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Total Xylenes	<5	<5	N.A.	N.A.	N.A.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<5	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	<5	<5	<10	<10	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Acetone	<10	<10	N.A.	N.A.	N.A.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	<10	<10	N.A.	N.A.	N.A.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	<10	<10	N.A.	N.A.	N.A.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	<10	<10	N.A.	N.A.	N.A.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	<5	<5	1	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.A.	N.A.	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.A.	<5	<10	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<10	<10	<10	<10	<10	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
1,1,2-2-Tetrachloroethane	<5	<5	1	<5	<5	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1

FILE MW6V

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

MW7

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION															
pH	N.S.	N.S.	N.S.	N.S.	6.87	N.S.	N.S.	N.S.	N.F	7.17	7.59	7.27	6.15	7.34	7	7.28
Conductivity (umhos/cm)	N.S.	N.S.	N.S.	N.S.	1100	N.S.	N.S.	N.S.	N.F	1450	917	1305	1170	1276	578	1320
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	13	11.9	17.2	7.7	17.6	11.7	18.8
COD (mg/l)	N.S.	N.S.	N.S.	N.S.	839.7	478	N.S.	N.S.	281	73.5	41.1	56	57.6	113	<20	56
Chloride (mg/l)	N.S.	N.S.	N.S.	N.S.	204	146	N.S.	N.S.	117	140	93	152	127	125	2	87
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	240	1900	320	280	250	65	69
Total Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	25.38	70.4	N.S.	N.S.	N.S.	64.3	26.2	43	32.4	13.4	18.7	14.8
Dissolved Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	5.08	15.35	N.S.	N.S.	0.653	2.41	0.1	0.51	0.94	0.91	8.1	0.2
Dissolved Cadmium (mg/l)	N.S.	N.S.	N.S.	N.S.	<.005	<.005	<.001	N.S.	<.002	0.0048	<.0005	0.0012	<.0005	<.0005	<.0005	<0.0005
Dissolved Chromium (mg/l)	N.S.	N.S.	N.S.	N.S.	<.03	<.005	<.002	N.S.	<.01	<.005	<.005	<.005	<.005	<.005	<.005	<0.005
Dissolved Copper (mg/l)	N.S.	N.S.	N.S.	N.S.	<.05	<.01	<.002	N.S.	<.01	<.02	<.02	<.02	<.03	<.03	<.03	<0.03
Dissolved Lead (ug/l)	N.S.	N.S.	N.S.	N.S.	<1	1.4	<.005	N.S.	<.01	<.005	<.005	<.005	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	12.51	6.25	N.S.	N.S.	N.S.	5.41	3.51	6.92	2.4	2.4	3.6	2.7
Dissolved Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	11.21	6.52	N.S.	N.S.	3.68	4.61	0.32	2.87	1.6	2.18	2.48	2.2
Dissolved Nickel (mg/l)	N.S.	N.S.	N.S.	N.S.	<.05	<.025	0.008	N.S.	<.01	<.05	<.05	<.05	<.05	<0.05	<.05	<0.05
Dissolved Zinc (mg/l)	N.S.	N.S.	N.S.	N.S.	0.058	0.023	0.005	N.S.	<.04	0.007	0.017	0.054	0.055	0.01	0.012	0.007
Total Organic Halides (ug/l)	N.S.	N.S.	N.S.	N.S.	N.S.	70	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
All results are expressed in ug/l

MW7A

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	5/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	N.S.	N.S.	N.S.	<10	<10	N.A.	N.S.	<10	<1	<1	<1	<1	<1	<1	<1
Chloroethane	N.S.	N.S.	N.S.	<10	<10	N.A.	N.S.	<10	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	N.S.	N.S.	N.S.	<5	<5	<2.8	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	N.S.	N.S.	N.S.	<5	<5	<4.7	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-Dichloroethene				<5	<5										
	N.S.	N.S.	N.S.			<1.6	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethene				N.A.	N.A.										
1,1,1-Trichloroethane	N.S.	N.S.	N.S.	<5	<5	<3.8	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	N.S.	N.S.	N.S.	<5	<5	<1.9	N.S.	<2	<1	<1	<1	<1	1	<1	<1
Benzene	N.S.	N.S.	N.S.	<5	1	<4.4	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	N.S.	N.S.	N.S.	<5	<5	<4.1	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Toluene	N.S.	N.S.	N.S.	<5	6	<6.0	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	N.S.	N.S.	N.S.	<5	<5	<7.2	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Total Xylenes	N.S.	N.S.	N.S.	N.A.	N.A.	N.A.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	N.S.	N.S.	N.S.	<5	<5	<6	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	N.S.	N.S.	N.S.	<5	<5	<2.8	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Acetone	N.S.	N.S.	N.S.	N.A.	N.A.	N.A.	N.S.	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	N.S.	N.S.	N.S.	N.A.	N.A.	N.A.	N.S.	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	N.S.	N.S.	N.S.	N.A.	N.A.	N.A.	N.S.	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	N.S.	N.S.	N.S.	N.A.	N.A.	N.A.	N.S.	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	N.S.	N.S.	N.S.	<5	<5	<1.6	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.S.	N.S.	N.S.	<10	<10	N.A.	N.S.	<10	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.S.	N.S.	N.S.	<5	<5	N.A.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Chloromethane	N.S.	N.S.	N.S.	<10	<10	N.A.	N.S.	<10	3	<1	1	<1	<1	<1	<1
1,1,2-2-Tetrachloroethane	N.S.	N.S.	N.S.	<5	<5	<6.9	N.S.	<2	<1	<1	<1	<1	<1	<1	<1

FILE MW7A

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

GS8

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION															
pH	8.1	7.55	7.4	7.5	7.3	7.4	N.S.	N.S.	N.F	7.82	7.79	7.79	N.F	7.49	7.66	7.54
Conductivity (umhos/cm)	N.A.	1000	900	1600	900	770	N.S.	N.S.	N.F	1643	1143	1274	887	1335	1040	1640
Temperature (C)	N.A.	N.S.	N.A.	N.A.	N.A.	N.A.	N.S.	N.S.	N.F.	17.8	10.2	13.8	N.F.	15.6	8.1	19.6
COD (mg/l)	82.7	22.6	36.5	86.03	34.76	290	N.S.	N.S.	32	44.2	27.8	27.8	10.6	49.2	27	47
Chloride (mg/l)	27.5	321	250	240	188	290	N.S.	N.S.	202	264	180	203	146	923	151	225
Turbidity (NTU)	N.A.	N.S.	N.A.	N.A.	N.A.	N.A.	N.S.	N.S.	N.S.	1.7	1.1	1.4	3.4	1.3	2.2	4.2
Total Iron (mg/l)	11.1	0.53	4.4	1.16	1.682	0.879	N.S.	N.S.	1.29	0.33	N.A.	0.3	0.61	0.41	0.93	0.87
Dissolved Iron (mg/l)	0.116	0.15	0.37	0.24	1.621	0.81	N.S.	N.S.	N.A.	N.A.	0.22	N.A.	0.60	0.29	0.77	0.52
Total Cadmium (mg/l)	<.005	<.005	<.005	<.005	<.005	<.005	<.001	N.S.	<.002	<.001	<.0005	0.0007	<.0005	<.0005	<.0005	<0.0005
Total Chromium (mg/l)	<.005	<.03	<.02	<.02	<.03	<.005	<.002	N.S.	<.01	<.005	<.005	<.005	<.005	<.005	<.005	<0.005
Total Copper (mg/l)	<.005	<.05	<.01	0.01	<.05	<.01	0.008	N.S.	<.01	<.02	<.02	<.02	<.03	<.03	<.03	<0.03
Total Lead (ug/l)	<.05	1.54	<.02	<1	<1	3.2	<.005	N.S.	<.01	<.005	<.005	N.A.	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	1.07	0.35	0.52	1.78	0.668	0.617	N.S.	N.S.	0.364	0.95	N.A.	<.02	0.34	0.48	0.55	0.94
Dissolved Manganese (mg/l)	0.845	0.35	0.44	1.56	0.667	0.617	N.S.	N.S.	N.A.	N.A.	0.4	N.A.	0.32	0.53	0.46	0.3
Total Nickel (mg/l)	<.01	<.05	<.01	0.02	<.05	<.025	<.005	N.S.	<.01	<.05	<.05	<.05	<.05	<.05	<.05	0.007
Total Zinc (mg/l)	0.067	<.01	0.026	0.03	0.016	0.03	0.008	N.S.	<.04	<.034	0.027	<.005	0.029	0.019	0.03	0.009
Total Organic Halides (ug/l)	82	N.S.	42	89	N.S.	35	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

GS8

Summary of Water Quality Sampling Results
All results are expressed in ug/l

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	<10	<10	<10	<10	<10	N.A.	N.S.	<10	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<10	<10	<10	<10	<10	N.A.	N.S.	<10	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<5	<5	<10	<5	<5	<2.8	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<5	<5	<10	<5	<5	<4.7	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-Dichloroethene	<5	<5	<5	<5	<5	<1.6	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethene	N.A.	N.A.	N.A.	N.A.	N.A.										
1,1,1-Trichloroethane	<5	<5	<10	<5	2	<3.8	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<5	<5	<5	<5	<5	<1.9	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Benzene	<5	<5	<10	<5	<5	<4.4	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<5	<5	<10	<5	<5	<4.1	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Toluene	<5	<5	<5	<5	6	<6	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<5	<5	<5	<5	<5	<7.2	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Total Xylenes	<5	<5	N.A.	N.A.	N.A.	N.A.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<5	<5	<10	<5	<5	<6	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	<5	<5	1	<5	2	<2.8	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Acetone	<10	<10	N.A.	N.A.	N.A.	N.A.	N.S.	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	40	<10	N.A.	N.A.	N.A.	N.A.	N.S.	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	<10	<10	N.A.	N.A.	N.A.	N.A.	N.S.	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	<10	<10	N.A.	N.A.	N.A.	N.A.	N.S.	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	<5	<5	<5	<5	2	1.6	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.A.	N.A.	<10	<10	4	N.A.	N.S.	<10	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.A.	<5	<10	<5	<5	N.A.	N.S.	<2	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<10	<10	<10	<10	<10	N.A.	N.S.	<10	<1	<1	<1	<1	<1	<1	<1
1,1,2-2-Tetrachloroethane	<5	<5	<5	<5	<5	<6.9	N.S.	<2	<1	<1	<1	<1	<1	<1	<1

FILE GS8V

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results

Units as Noted

GS6

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION															
pH	7.5	7.6	7.1	7.7	7.55	7.6	N.S.	N.A.	N.F	7.07	8.01	7.84	6.90	7.74	8.03	7.92
Conductivity (umhos/cm)	N.A.	200	99	210	170	90	N.S.	372	N.F	260	341	192	378	168	330	320
Temperature (C)	N.A.	N.S.	N.A.	N.A.	N.A.	N.A.	N.S.	16.9	N.F.	18.5	10	15.2	6.8	15.6	10	20.1
COD (mg/l)	28.6	10.9	7.1	325	2.15	336	N.S.	4	10	7.6	4.3	7.7	7.5	22.8	<20	<20
Chloride (mg/l)	220	24.4	19.5	20.5	31.6	28.3	N.S.	49.2	20.6	23	41	25	60	23	59	28
Turbidity (NTU)	N.A.	N.S.	N.A.	N.A.	N.A.	N.A.	N.S.	N.A.	N.S.	1.4	1.2	0.6	1.2	1.3	2.3	0.88
Total Iron (mg/l)	0.318	3.28	0.13	0.18	0.116	0.197	N.S.	N.A.	0.236	0.2	N.A.	0.11	0.53	0.57	0.79	0.16
Dissolved Iron (mg/l)	0.01	<.05	<.05	<.02	0.049	0.117	N.S.	0.152	N.A.	N.A.	0.09	N.A.	0.25	0.31	0.58	0.14
Total Cadmium (mg/l)	<.005	<.005	<.005	<.005	<.005	<.005	<.001	0.002	<.02	<.001	<.0005	<.0005	<.0005	<.0005	<.0005	<0.0005
Total Chromium (mg/l)	<.005	<.005	<.02	<.02	<.03	<.005	<.002	<.01	<.01	<.005	<.005	<.005	<.005	<0.005	<.005	<0.005
Total Copper (mg/l)	<.005	<.05	<.01	0.01	<.05	<.01	0.014	0.015	<.01	<.02	<.02	<.02	<.03	<.03	<.03	<0.03
Total Lead (ug/l)	<.05	<1	<.02	1.1	<1	1.4	<.005	<.01	<.01	<.005	<.005	<.005	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	0.051	0.08	0.04	0.02	0.024	0.039	N.S.	N.A.	0.046	0.05	N.A.	0.03	0.03	0.04	0.17	0.06
Dissolved Manganese (mg/l)	0.025	<.025	0.02	<.02	0.017	0.029	N.S.	0.039	N.A.	N.A.	0.02	N.A.	0.03	0.04	0.15	0.08
Total Nickel (mg/l)	<.01	<.05	<.01	<.005	<.05	<.025	<.005	<.01	<.01	<.05	<.05	<.05	<.05	<.05	<.05	<0.005
Total Zinc (mg/l)	0.015	0.54	0.007	0.006	0.005	0.014	0.009	<.04	<.04	<.012	0.014	<.005	0.026	<.005	0.032	<0.005
Total Organic Halides (ug/l)	<10	N.S.	10	15	N.S.	19	N.S.	N.A.	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
All results are expressed in ug/l

GSI

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	<10	<10	<10	<10	<10	N.A.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<10	<10	<10	<10	<10	N.A.	<10	<10	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<5	<5	<10	<5	<5	<2.8	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<5	<5	<10	<5	<5	<4.7	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-Dichloroethene	<5	<5	<5	<5	<5	<1.6	<2	<2	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethene	N.A.	N.A.	N.A.	N.A.	N.A.										
1,1,1-Trichloroethane	<5	<5	<10	<5	<5	<3.8	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<5	<5	<5	<5	<5	<1.9	<2	<2	<1	<1	<1	<1	<1	<1	<1
Benzene	<5	<5	<10	<5	<5	<4.4	<2	<2	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	<5	<5	<10	<5	<5	<4.1	<2	<2	<1	<1	<1	<1	<1	<1	<1
Toluene	<5	<5	<5	<5	6	<6	<2	<2	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	<5	<5	<5	<5	<5	<7.2	<2	<2	<1	<1	<1	<1	<1	<1	<1
Total Xylenes	<5	<5	N.A.	N.A.	N.A.	N.A.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<5	<5	<10	<5	<5	<6	<2	<2	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	<5	<5	1	<5	<5	<2.8	<2	<2	<1	<1	<1	<1	<1	<1	<1
Acetone	<10	<10	N.A.	N.A.	N.A.	N.A.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	<10	<10	N.A.	N.A.	N.A.	N.A.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	<10	<10	N.A.	N.A.	N.A.	N.A.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	<10	<10	N.A.	N.A.	N.A.	N.A.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	<5	<5	<5	<5	<5	<1.6	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.A.	N.A.	<10	<10	<10	N.A.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.A.	<5	<10	<5	<5	N.A.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<10	<10	<10	<10	<10	N.A.	<10	<10	<1	<1	<1	<1	<1	<1	<1
1,1,2-2-Tetrachloroethane	<5	<5	<5	<5	<5	<6.9	<2	<2	<1	<1	<1	<1	<1	<1	<1

FILE GS4V

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

MW101

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	6/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION															
pH	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F	7.28	7.95	8.32	7.56	6.77	7.98	6.36
Conductivity (umhos/cm)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	900	N.F	444	214	181	175	303	193	350
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	11.1	N.F.	11.9	10.3	9.9	7.9	11.2	8.4	12.4
COD (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	1220	74	26.7	19.7	8	27.4	7.2	<20	<20
Chloride (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	3.7	3.4	1	2	<1	2	<1	4	1
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	480	700	690	340	370	260	52
Total Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	13	10.4	24.4	27.6	27.5	35.4	4.4
Dissolved Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	18.3	39.7	<.02	<.05	0.04	<0.03	<0.03	<0.03	<0.03
Dissolved Cadmium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.002	<.002	<.001	<.0005	<.0005	<.0005	<.0005	<.0005	<0.0005
Dissolved Chromium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	<.01	0.025	<.005	<.005	<.005	<.005	<.005	<0.005
Dissolved Copper (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	<.01	0.05	<.02	<.02	<.03	<.03	<.03	<0.03
Dissolved Lead (ug/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	<.01	0.015	<.005	<.005	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	1.08	0.87	2.2	1.19	1.12	1.52	0.2
Dissolved Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	1.58	1.85	<.02	<.02	<.02	<.02	<0.02	<.02	<0.02
Dissolved Nickel (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	<.01	<.05	<.05	<.05	<.05	<.05	<.05	<0.05
Dissolved Zinc (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.04	<.04	0.126	0.015	0.007	0.023	<.005	<.005	<0.005
Total Organic Halides (ug/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

MW101

Summary of Water Quality Sampling Results
All results are expressed in ug/l

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Chloroethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-Dichloroethene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Cis-1,2-Dichloroethene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.									
1,1,1-Trichloroethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Benzene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Tetrachloroethene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Toluene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Ethylbenzene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Total Xylenes	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Acetone	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Chloromethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
1,1,2-2-Tetrachloroethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1

FILE MW101

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

MW102

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
PARAMETER	CONCENTRATION															
pH	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F	6.77	6.88	6.68	6.40	6.7	6.41	6.61
Conductivity (umhos/cm)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	183	N.F	1055	1162	1637	1228	1716	1150	1450
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	9.1	N.F.	10.7	13.7	10.5	10.4	10.5	11.3	10.8
COD (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	780	<10	80.7	88.6	232	52.5	314	29	121
Chloride (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	1.2	1	3	2	121	153	172	115	103
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	3400	1550	600	1200	130	1040	5300
Total Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	157	122	97.7	146	106	220	74
Dissolved Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.017	0.109	44.6	83.5	75.9	42.3	80.7	41	75.5
Dissolved Cadmium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.002	<.002	<.001	<.0005	<.0005	<.0005	0.0008	<.0005	<0.0005
Dissolved Chromium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	<.01	0.07	<.005	<.005	<.005	<.005	<.005	<0.005
Dissolved Copper (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	<.01	0.33	<.02	<.02	<.03	<.03	<.03	<0.03
Dissolved Lead (ug/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	<.01	0.314	<.005	<.005	<.005	<.003	<.003	<0.003
Total Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	11.9	7.54	7.94	5.0	4.7	7.8	2.7
Dissolved Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	<.01	1.65	3.19	5.23	1.6	4.3	2.4	2.5
Dissolved Nickel (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	<.01	0.13	<.05	<.05	<.05	<.05	<.05	<0.05
Dissolved Zinc (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.04	<.04	0.633	0.024	0.071	0.039	0.033	<.005	0.009
Total Organic Halides (ug/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
All results are expressed in ug/l

MW102

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	5/92	10/92	5/93	10/93	5/94
COMPOUND	CONCENTRATION														
Vinyl Chloride	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Chloroethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trans-1,2-Dichloroethene Cis-1,2-Dichloroethene	N.S. N.S.	N.S. N.S.	N.S. N.S.	N.S. N.S.	N.S. N.S.	N.S. N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	1	<1	<1
Benzene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	1	1	<1
Tetrachloroethene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Toluene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	16	2	10
Ethylbenzene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Total Xylenes	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Methylene Chloride	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Acetone	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<50	<50	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
2-Hexanone	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<20	<20	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Chloroform	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<10	<10	<1	<1	<1	<1	<1	<1	<1
Trans-1,3-Dichloropropene	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1
Chloromethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<10	<10	<1	6	2	3	<1	<1	<1
1,1,2-2-Tetrachloroethane	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<2	<2	<1	<1	<1	<1	<1	<1	<1

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

[redacted]

METALS AND INDICATORS

DATE OF SAMPLE	9/80	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	10/92	10/93
PARAMETER	CONCENTRATION													
pH	6.4	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	7.52	N.S.	7.56
Conductivity (umhos/cm)	860	N.S.	N.S.	800	1100	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	887	N.S.	805
Temperature (C)	12	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	17.4	N.S.	19.7
COD (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<5	<10	N.S.	6.4	N.S.	<20
Chloride (mg/l)	97	N.S.	N.S.	170	164	N.S.	N.S.	N.S.	74	108	N.S.	88	N.S.	136
Turbidity (NTU)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.1
Total Iron (mg/l)	0.28	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	1.48	1.35	N.S.	N.S.	N.S.	0.09
Dissolved Iron (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.A.	N.A.	N.S.	4.29	N.S.	<0.03
Dissolved Cadmium (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.001	<.01	<.002	N.S.	N.S.	N.S.	N.S.
Dissolved Chromium (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.002	<.02	<.01	N.S.	N.S.	N.S.	N.S.
Dissolved Copper (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	21	<.025	0.01	N.S.	N.S.	N.S.	N.S.
Dissolved Lead (ug/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	15	<.005	<.01	N.S.	N.S.	N.S.	N.S.
Total Manganese (mg/l)	0.66	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	1.33	0.93	N.S.	N.S.	N.S.	<0.02
Dissolved Manganese (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.A.	N.A.	N.S.	1.58	N.S.	<0.02
Dissolved Nickel (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.005	<.04	<.01	N.S.	N.S	N.S.	N.S.
Dissolved Zinc (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.008	0.18	0.246	N.S.	N.S	N.S.	N.S.
Total Organic Halides (ug/l)	N.A.	N.S.	N.S.	N.S.	70	N.S.	N.S.	N.S.	N.A.	N.A.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
All results are expressed in ug/l

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	2/91	5/91	10/91	10/92	10/93
COMPOUND	CONCENTRATION												
Vinyl Chloride	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<10	<10	N.S.	N.S.	<1	N.S.	<1
Chloroethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<10	<10	N.S.	N.S.	<1	N.S.	<1
1,1-Dichloroethene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
1,1-Dichloroethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Trans-1,2-Dichloroethene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Cis-1,2-Dichloroethene	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.			N.S.	N.S.		N.S.	
1,1,1-Trichloroethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Trichloroethene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Benzene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Tetrachloroethene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Toluene	N.S.	N.S.	1	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Ethylbenzene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Total Xylenes	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
1,2-Dichloropropane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Methylene Chloride	N.S.	N.S.	3	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Acetone	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.	<50	<50	N.S.	N.S.	N.A.	N.S.	N.A.
Methyl Ethyl Ketone	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.	<50	<50	N.S.	N.S.	N.A.	N.S.	N.A.
2-Hexanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.	<20	<20	N.S.	N.S.	N.A.	N.S.	N.A.
4-Methyl-2-Pentanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.	<20	<20	N.S.	N.S.	N.A.	N.S.	N.A.
Chloroform	N.S.	N.S.	9	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Trichlorofluoromethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<10	<10	N.S.	N.S.	<1	N.S.	<1
Trans-1,3-Dichloropropene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1
Chloromethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<10	<10	N.S.	N.S.	<1	N.S.	<1
Bromodichloromethane	N.S.	N.S.	3	N.S.	N.S.	N.S.	<2	<2	N.S.	N.S.	<1	N.S.	<1

FILE DUNHMV

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

METALS AND INDICATORS

DATE OF SAMPLE	9/80	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	10/92	10/93
PARAMETER	CONCENTRATION													
pH	6.2	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.P.	N.P.	N.S.	7.61	6.07	7.86
Conductivity (umhos/cm)	300	N.S.	N.S.	125	185	N.S.	N.S.	N.S.	N.F.	N.P.	N.S.	253	203	190
Temperature (C)	12	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.P.	N.F.	N.S.	12.2	12.3	9
COD (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	<2	2.4	<20
Chloride (mg/l)	9.2	N.S.	N.S.	1.5	1	N.S.	N.S.	N.S.	N.F.	N.P.	N.S.	1	1	<1
Turbidity (NTU)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.P.	N.P.	N.S.	N.S.	N.S.	8.1
Total Iron (mg/l)	0.02	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.P.	N.F.	N.S.	N.S.	N.S.	3.24
Dissolved Iron (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	2.2	2.19	2.08
Dissolved Cadmium (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.001	N.F.	N.P.	N.S.	N.S.	N.S.	N.S.
Dissolved Chromium (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.002	N.F.	N.F.	N.S.	N.S.	N.S.	N.S.
Dissolved Copper (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.007	N.F.	N.F.	N.S.	N.S.	N.S.	N.S.
Dissolved Lead (ug/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.005	N.F.	N.F.	N.S.	N.S.	N.S.	N.S.
Total Manganese (mg/l)	0.01	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	N.S.	N.S.	0.13
Dissolved Manganese (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	0.14	0.13	0.11
Dissolved Nickel (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.005	N.F.	N.F.	N.S.	N.S	N.S	N.S
Dissolved Zinc (mg/l)	N.A.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.001	N.F.	N.F.	N.S.	N.S	N.S	N.S
Total Organic Halides (ug/l)	N.A.	N.S.	N.S.	N.S.	10.9	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	N.S.	N.S.	N.S.

RUTLAND CITY LANDFILL

KUSINA RESIDENCE

Summary of Water Quality Sampling Results
All results are expressed in ug/l

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	2/91	5/91	10/91	10/92	10/93
COMPOUND	CONCENTRATION												
Vinyl Chloride	N.S.	N.S.	<10	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Chloroethane	N.S.	N.S.	<10	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
1,1-Dichloroethene	N.S.	N.S.	3	N.S.	N.S.	<2.8	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
1,1-Dichloroethane	N.S.	N.S.	2	N.S.	N.S.	<4.7	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Trans-1,2-Dichloroethene	N.S.	N.S.	2	N.S.	N.S.	<1.6	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Cis-1,2-Dichloroethene	N.S.	N.S.	N.A.	N.S.	N.S.			N.S.	N.S.	N.S.			
1,1,1-Trichloroethane	N.S.	N.S.	2	N.S.	N.S.	<3.8	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Trichloroethene	N.S.	N.S.	2	N.S.	N.S.	<1.9	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Benzene	N.S.	N.S.	2	N.S.	N.S.	<4.4	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Tetrachloroethene	N.S.	N.S.	3	N.S.	N.S.	<4.1	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Toluene	N.S.	N.S.	2	N.S.	N.S.	<6	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Ethylbenzene	N.S.	N.S.	3	N.S.	N.S.	<7.2	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Total Xylenes	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
1,2-Dichloropropane	N.S.	N.S.	1	N.S.	N.S.	<6	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Methylene Chloride	N.S.	N.S.	3	N.S.	N.S.	<2.8	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Acetone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	N.A.	N.A.	N.A.
2-Hexanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	N.A.	N.A.	N.A.
Chloroform	N.S.	N.S.	3	N.S.	N.S.	<1.6	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Trichlorofluoromethane	N.S.	N.S.	5	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Trans-1,3-Dichloropropene	N.S.	N.S.	1	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
Chloromethane	N.S.	N.S.	<10	N.S.	N.S.	N.A.	N.F.	N.S.	N.S.	N.S.	<1	<1	<1
1,1,2-2-Tetrachloroethane	N.S.	N.S.	<10	N.S.	N.S.	<6.9	N.F.	N.S.	N.S.	N.S.	<1	<1	<1

FILE KUSINV

RUTLAND CITY LANDFILL

[redacted]

Summary of Water Quality Sampling Results
Units as Noted

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	10/92	10/93
PARAMETER	CONCENTRATION												
pH	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	7.64	6.39	7.57
Conductivity (umhos/cm)	N.S.	N.S.	435	575	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	876	820	875
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	16.5	13.2	12.9
COD (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	4	<10	N.S.	<2	<2	<20
Chloride (mg/l)	N.S.	N.S.	101	92	N.S.	N.S.	N.S.	172	153	N.S.	162	180	186
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.6
Total Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.06	N.S.	N.S.	N.S.	0.15
Dissolved Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.291	N.A.	N.S.	<.05	0.08	0.07
Dissolved Cadmium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.001	<.002	.002	N.S.	N.S.	N.S.	NA
Dissolved Chromium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.002	.01	<.01	N.S.	N.S.	N.S.	NA
Dissolved Copper (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	21	0.031	0.071	N.S.	N.S.	N.S.	NA
Dissolved Lead (ug/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	15	<.01	<.01	N.S.	N.S.	N.S.	NA
Total Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.A.	<.01	N.S.	N.S.	N.S.	0.13
Dissolved Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.01	N.A.	N.S.	<.02	<.02	0.11
Dissolved Nickel (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.005	<.01	<.01	N.S.	N.S	N.S	NA
Dissolved Zinc (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.008	<.04	0.062	N.S.	N.S	N.S	NA
Total Organic Halides (ug/l)	N.S.	N.S.	N.S.	10	N.S.	N.S.	N.S.	N.A.	N.A.	N.S.	N.S.	N.S.	NA

FILE MTN7

RUTLAND CITY LANDFILL

[illegible]

Summary of Water Quality Sampling Results
All results are expressed in ug/l

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	2/91	5/91	10/91	10/92	10/93
COMPOUND	CONCENTRATION												
Vinyl Chloride	N.S.	N.S.	<10	N.S.	N.S.	N.A.	<10	<10	<10	N.S.	<1	<1	<1
Chloroethane	N.S.	N.S.	<10	N.S.	N.S.	N.A.	<10	<10	<10	N.S.	<1	<1	<1
1,1–Dichloroethene	N.S.	N.S.	<10	N.S.	N.S.	<2.8	<2	<2	<5	N.S.	<1	<1	<1
1,1–Dichloroethane	N.S.	N.S.	<10	N.S.	N.S.	<4.7	<2	<2	<5	N.S.	<1	<1	2
Trans–1,2–Dichloroethene	N.S.	N.S.	<10	N.S.	N.S.	<1.6	<2	<2	<5	N.S.	1	2	2
Cis–1,2–Dichloroethene	N.S.	N.S.	N.A.	N.S.	N.S.				N.A.	N.S.			
1,1,1–Trichloroethane	N.S.	N.S.	<10	N.S.	N.S.	<3.8	<2	<2	<5	N.S.	<1	<1	<1
Trichloroethene	N.S.	N.S.	1	N.S.	N.S.	<1.9	<2	2	<5	N.S.	1	1	2
Benzene	N.S.	N.S.	<10	N.S.	N.S.	<4.4	<2	<2	<5	N.S.	<1	<1	<1
Tetrachloroethene	N.S.	N.S.	<10	N.S.	N.S.	<4.1	<2	<2	<5	N.S.	<1	<1	2
Toluene	N.S.	N.S.	1	N.S.	N.S.	<6	<2	<2	<5	N.S.	<1	<1	<1
Ethylbenzene	N.S.	N.S.	<10	N.S.	N.S.	<7.2	<2	<2	<5	N.S.	<1	<1	<1
Total Xylenes	N.S.	N.S.	<10	N.S.	N.S.	N.A.	<2	<2	<5	N.S.	<1	<1	<1
1,2–Dichloropropane	N.S.	N.S.	<10	N.S.	N.S.	<6	<2	<2	<5	N.S.	<1	<1	<1
Methylene Chloride	N.S.	N.S.	1	N.S.	N.S.	<2.8	<2	<2	<10	N.S.	1	1	1
Acetone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	<50	<50	N.A.	N.S.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	<50	<50	N.A.	N.S.	N.A.	N.A.	N.A.
2–Hexanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	<20	<20	N.A.	N.S.	N.A.	N.A.	N.A.
4–Methyl–2–Pentanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	<20	<20	N.A.	N.S.	N.A.	N.A.	N.A.
Chloroform	N.S.	N.S.	2	N.S.	N.S.	<1.6	<2	<2	<5	N.S.	<1	2	2
Trichlorofluoromethane	N.S.	N.S.	<10	N.S.	N.S.	N.A.	<10	<10	<10	N.S.	<1	<1	<1
Trans–1,3–Dichloropropene	N.S.	N.S.	<10	N.S.	N.S.	N.A.	<2	<2	<5	N.S.	<1	<1	<1
Chloromethane	N.S.	N.S.	<10	N.S.	N.S.	N.A.	<10	<10	<10	N.S.	<1	<1	<1
1,1,2–2–Tetrachloroethane	N.S.	N.S.	<10	N.S.	N.S.	<6.9	<2	<2	<5	N.S.	<1	2	2
1,2–Dichloroethane	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1

FILE MINTRV

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

[illegible]

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	10/92	10/93
PARAMETER	CONCENTRATION												
pH	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	7.25	6.06	7.42
Conductivity (umhos/cm)	N.S.	N.S.	420	650	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	1084	1180	1220
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	14.4	15.2	10.7
COD (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	3.4	22.6	<20
Chloride (mg/l)	N.S.	N.S.	134	87	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	240	291	326
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	N.S.	N.S.	0.26
Total Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	N.S.	N.S.	0.14
Dissolved Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	<.05	0.05	<0.03
Dissolved Cadmium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.001	N.F.	N.F.	N.S.	N.S.	N.S.	N.S.
Dissolved Chromium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.002	N.F.	N.F.	N.S.	N.S.	N.S.	N.S.
Dissolved Copper (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	21	N.F.	N.F.	N.S.	N.S.	N.S.	N.S.
Dissolved Lead (ug/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	15	N.F.	N.F.	N.S.	N.S.	N.S.	N.S.
Total Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	N.S.	N.S.	0.02
Dissolved Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	<.02	<.02	<.02
Dissolved Nickel (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<.005	N.F.	N.F.	N.S.	N.S	N.S	N.S
Dissolved Zinc (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.008	N.F.	N.F.	N.S.	N.S	N.S	N.S
Total Organic Halides (ug/l)	N.S.	N.S.	13	10	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	N.S.	N.S.	N.S.

FILE MIDASI

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results

All results are expressed in ug/l

MIDAS

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	2/91	5/91	10/91	10/92	10/93
COMPOUND	CONCENTRATION												
Vinyl Chloride	N.S.	N.S.	<10	N.S.	N.S.	N.A.	N.F.	N.S.	<10	N.S.	<1	<1	<1
Chloroethane	N.S.	N.S.	<10	N.S.	N.S.	N.A.	N.F.	N.S.	<10	N.S.	<1	<1	<1
1,1-Dichloroethene	N.S.	N.S.	<5	N.S.	N.S.	<2.8	N.F.	N.S.	<5	N.S.	<1	<1	<1
1,1-Dichloroethane	N.S.	N.S.	1.00	N.S.	N.S.	<4.7	N.F.	N.S.	<5	N.S.	<1	<1	2.00
Trans-1,2-Dichloroethene	N.S.	N.S.	1.00	N.S.	N.S.	<1.6	N.F.	N.S.	<5	N.S.	<1	<1	2
Cis-1,2-Dichloroethene	N.S.	N.S.	N.A.	N.S.	N.S.			N.S.	N.A.	N.S.			
1,1,1-Trichloroethane	N.S.	N.S.	<10	N.S.	N.S.	<3.8	N.F.	N.S.	<5	N.S.	<1	<1	<1
Trichloroethene	N.S.	N.S.	1.00	N.S.	N.S.	<1.9	N.F.	N.S.	<5	N.S.	<1	1.00	2.00
Benzene	N.S.	N.S.	1.00	N.S.	N.S.	<4.4	N.F.	N.S.	<5	N.S.	<1	<1	<1
Tetrachloroethene	N.S.	N.S.	<10	N.S.	N.S.	<4.1	N.F.	N.S.	<5	N.S.	<1	<1	2.00
Toluene	N.S.	N.S.	1.00	N.S.	N.S.	<6	N.F.	N.S.	<5	N.S.	<1	<1	<1
Ethylbenzene	N.S.	N.S.	<5	N.S.	N.S.	<7.2	N.F.	N.S.	<5	N.S.	<1	<1	<1
Total Xylenes	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	<5	N.S.	<1	<1	<1
1,2-Dichloropropane	N.S.	N.S.	<10	N.S.	N.S.	<6	N.F.	N.S.	<5	N.S.	<1	<1	<1
Methylene Chloride	N.S.	N.S.	1.00	N.S.	N.S.	<2.8	N.F.	N.S.	<10	N.S.	<1	<1	1.00
Acetone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	N.A.	N.S.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	N.A.	N.S.	N.A.	N.A.	N.A.
2-Hexanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	N.A.	N.S.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.A.	N.F.	N.S.	N.A.	N.S.	N.A.	N.A.	N.A.
Chloroform	N.S.	N.S.	1.00	N.S.	N.S.	<1.6	N.F.	N.S.	<5	N.S.	<1	1.00	2.00
Trichlorofluoromethane	N.S.	N.S.	<10	N.S.	N.S.	N.A.	N.F.	N.S.	<10	N.S.	<1	<1	<1
Trans-1,3-Dichloropropene	N.S.	N.S.	<10	N.S.	N.S.	N.A.	N.F.	N.S.	<5	N.S.	<1	<1	<1
Chloromethane	N.S.	N.S.	<10	N.S.	N.S.	N.A.	N.F.	N.S.	<10	N.S.	<1	<1	<1
1,1,2-2-Tetrachloroethane	N.S.	N.S.	<5	N.S.	N.S.	<6.9	N.F.	N.S.	<5	N.S.	<1	<1	<1
1,2-Dichloroethane	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1

FILE MIDAS

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
Units as Noted

[redacted]

METALS AND INDICATORS

DATE OF SAMPLE	8/85	10/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	5/91	10/91	10/92	10/93
PARAMETER	CONCENTRATION												
pH	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	7.26	N.S.	7.56
Conductivity (umhos/cm)	N.S.	N.S.	305	500	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	730	N.S.	805
Temperature (C)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.F.	N.F.	N.S.	13.3	N.S.	19.7
COD (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<4	<10	N.S.	2.6	N.S.	<20
Chloride (mg/l)	N.S.	N.S.	157.5	168	N.S.	N.S.	N.S.	88.5	78.4	N.S.	109	N.S.	136
Turbidity (NTU)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.1
Total Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.092	N.S.	N.S.	N.S.	0.09
Dissolved Iron (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.055	N.A.	N.S.	<0.05	N.S.	<0.03
Dissolved Cadmium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<0.001	<0.002	<0.002	N.S.	N.S.	N.S.	N.S.
Dissolved Chromium (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<0.002	0.01	<0.01	N.S.	N.S.	N.S.	N.S.
Dissolved Copper (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	21	0.062	0.036	N.S.	N.S.	N.S.	N.S.
Dissolved Lead (ug/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	15	<0.01	<0.01	N.S.	N.S.	N.S.	N.S.
Total Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.A.	<0.01	N.S.	N.S.	N.S.	<0.02
Dissolved Manganese (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<0.01	N.A.	N.S.	<0.02	N.S.	<0.02
Dissolved Nickel (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	<0.005	<0.01	<0.01	N.S.	N.S.	N.S.	N.S.
Dissolved Zinc (mg/l)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	0.008	<0.04	<0.04	N.S.	N.S.	N.S.	N.S.
Total Organic Halides (ug/l)	N.S.	N.S.	N.S.	10	N.S.	N.S.	N.S.	N.A.	N.A.	N.S.	N.S.	N.S.	N.S.

FILE WALSH

RUTLAND CITY LANDFILL

Summary of Water Quality Sampling Results
All results are expressed in ug/l

VOLATILE ORGANIC COMPOUNDS

DATE OF SAMPLE	8/85	4/86	8/86	10/86	4/87	11/87	7/90	12/90	2/91	5/91	10/91	10/92	10/93
COMPOUND	CONCENTRATION												
Vinyl Chloride	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<10	<10	<10	N.S.	<1	<1	<1
Chloroethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<10	<10	<10	N.S.	<1	<1	<1
1,1-Dichloroethene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	<1
1,1-Dichloroethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	1
Trans-1,2-Dichloroethene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	1
Cis-1,2-Dichloroethene	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.			N.A.	N.S.			
1,1,1-Trichloroethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	<1
Trichloroethene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	2	<5	N.S.	<1	<1	<1
Benzene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	<1
Tetrachloroethene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	2
Toluene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	<1
Ethylbenzene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	<1
Total Xylenes	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	<1
1,2-Dichloropropane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	<1
Methylene Chloride	N.S.	N.S.	2	N.S.	N.S.	N.S.	<2	<2	<10	N.S.	<1	<1	1
Acetone	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.	<50	<50	N.A.	N.S.	N.A.	N.A.	N.A.
Methyl Ethyl Ketone	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.	<50	<50	N.A.	N.S.	N.A.	N.A.	N.A.
2-Hexanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.	<20	<20	N.A.	N.S.	N.A.	N.A.	N.A.
4-Methyl-2-Pentanone	N.S.	N.S.	N.A.	N.S.	N.S.	N.S.	<20	<20	N.A.	N.S.	N.A.	N.A.	N.A.
Chloroform	N.S.	N.S.	8	N.S.	N.S.	N.S.	<2	6	<5	N.S.	6	6	4
Trichlorofluoromethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<10	<10	<10	N.S.	<1	<1	1
Trans-1,3-Dichloropropene	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	<2	<5	N.S.	<1	<1	<1
Chloromethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<10	<10	<10	N.S.	<1	<1	<1
Bromodichloromethane	N.S.	N.S.	<10	N.S.	N.S.	N.S.	<2	2	<5	N.S.	<1	<1	1

FILE WALEL